

HG-SERIES

Magnetic Contactors & Overload Relays

سازه گستر

پایتخت

S.G.P

سازه گستر پایتخت

تامین کننده ملزومات برق

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LV & MV Circuit Breakers

MAGNETIC CONTACTORS & OVERLOAD RELAYS



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Magnetic Contactors & Overload Relays

Motor Protection Solutions that can be applied to various industrial systems to achieve improved durability and insulation performance.

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- Various Product Ranges: 9 - 800 A (8 frames)
- Rated Insulation Voltage: 1000 V (50 A -)
- Reduced Installing Space by Upper Arranged Structure of Auxiliary Contacts
- Direct Mounting Structure for Thermal Overload Relay
- Power Consumption Reduction Type Auxiliary Relay
- Safety Protection Cover for TOR
- AC/DC Free Voltage (115 A -)
- Standards and Certifications: KERI CB, Marine Approvals (7's Classifications)

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HG-SERIES

Magnetic Contactor HGC 9 - 800 AF

Thermal Overload Relays HGT 9 - 800 AF



Contactor (HGC)



Overload Relay (HGT)



HGC
Rated Current
Rated Insulation Voltage

HGT
Setting Current
Protection Grade

| | | | |
|-----------------------------|--------------------------|--------------------------|----------------------------|
| 18 AF | 40 AF | 65 AF | 100 AF |
| 9, 12, 18 A 750 V | 25, 32, 40 A 750 V | 50, 65 A 1,000 V | 75, 85, 100 A 1,000 V |
| 0.12 - 18 A Class 10, 20 | 7 - 40 A Class 10, 20 | 7 - 65 A Class 10, 20 | 17 - 100 A Class 10, 20 |

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150 AF

115, 130, 150 A
1,000 V

48 - 150 A
Class 10, 20

265 AF

185, 225, 265 A
1,000 V

48 - 265 A
Class 10, 20

500 AF

300, 400, 500 A
1,000 V

90 - 500 A
Class 10, 20

800 AF

630, 800 A
1,000 V

378 - 800 A
Class 10, 20

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External Structure and Contents of Nameplate



Magnetic Contactors

- 1 Control Power Terminal
- 2 Main Terminal
- 3 Auxiliary Terminal
- 4 Type Name
- 5 Manufacturer Name
- 6 Safety Cover
- 7 Din-Rail Mounting Part
- 8 Upper Frame
- 9 Upper Cover
- 10 Name Plate
- 11 Screw Mounting Hole
- 12 Mounting Hole for Auxiliary Devices on Sides

نام پل کننده ملزومات برق

Type Name

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Ratings

۰۲۱-۶۶۱۷۲۰

KC Mark and Number

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Country of Origin

HHI Logo

| HGC 40 MAGNETIC CONTACTOR 교류전자개폐기 [접속기] | | | |
|---|-------|-------|-----------------------|
| IEC/EN 60947-4-1 | | | |
| U _e (VAC) | kW | VAC | HP |
| 220-240 | 11 | 200 | 10 |
| AC-3 380-440 | 18.5 | 230 | 10 |
| 500-550 | 22 | 440 | 30 |
| 660-690 | 22 | 575 | 30 |
| K60947-4-1, AC3-0-0.50/60Hz | | | |
|  | 주 회 로 | 전압 | 전류 |
| | 보조 회로 | 220V | 40A |
| | | 440V | 40A |
| | | 220V | 6A |
| | | 2a/2b | I _{th} = 16A |
| 조작성 및 제조년월 별도 표시 VAC 1-PH 3-PH 110-120 3HP - 220-240 7.5HP 15HP 440-480 - 30HP | | | |
| BREAK ALL LINES. CONTINUOUS CURRENT: 60A AWG & 75 °C Cu Wire ONLY AUX. CONT. A600-P300 TORQUE 28kgf-cm(2.4 N-m) | | | |
| MADE IN KOREA | | | |
| SERIAL NO. | | | |
|  | | | |

Standards

UL Rating

Serial No.

Manufacturer

Thermal Overload Relay

Protection Cover

- Operating side is covered with protection cover in order not to change the settings and any operating arbitrarily.
- In order to change the settings, it can be changed by lifting up the protection cover.

Test Button

- When motor needs emergency stop during operation, it is possible to stop the motor by cutting off its contact from the magnetic contact with test button.
- In order to test the operation of thermal overload relay contacts, immediate testing is possible by pulling up test button which changes NO/NC contact.

Current Setting Knob

It is possible to set the rated current as 3 steps by using a +/- screwdriver.

Reset Button

A (Auto) Mode: Auto reset

H (Manual) Mode: Manual reset

Main Circuit Terminal

Screw type terminal is standard model, but for 40 - 100 AF, Lug type is available as an option.

Safety Structures of TOR

- Attachment of protection cover
 - Prevents test function during operation and misoperation by user.
- Separation of reset button and test button
 - Prevents malfunction during operation.



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Magnetic Contactor (HGC)

9 - 100 AF

Enhanced Safety

Front Protection Cover

- Minimize foreign input
- Prevent unexpected operation due to user's error

Sealed Structure of Mounting Hole for Auxiliary Devices

- Obstructed by contact bridge when MC is ON / OFF

Removable Terminal Cover

- Applicable for main contact, auxiliary contact, coil contact
- IP20



Improved Customer's Convenience

Upper Arrayed Auxiliary Contacts

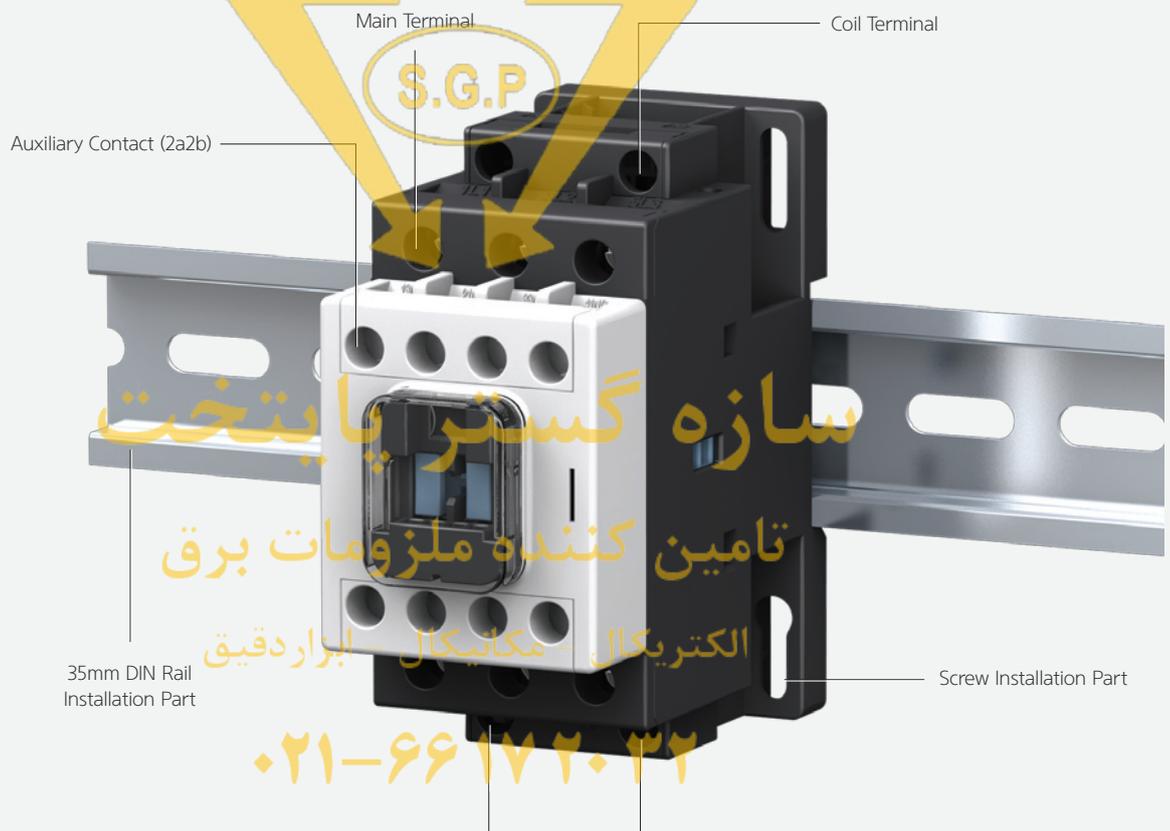
- Easy wiring control cable. (default, 2a2b)

Easy Coil Replacement Structure

- Easy maintenance and replacement in attached status on switchgear

Various Attachment Methods on Switchgear

- DIN rail and screw type

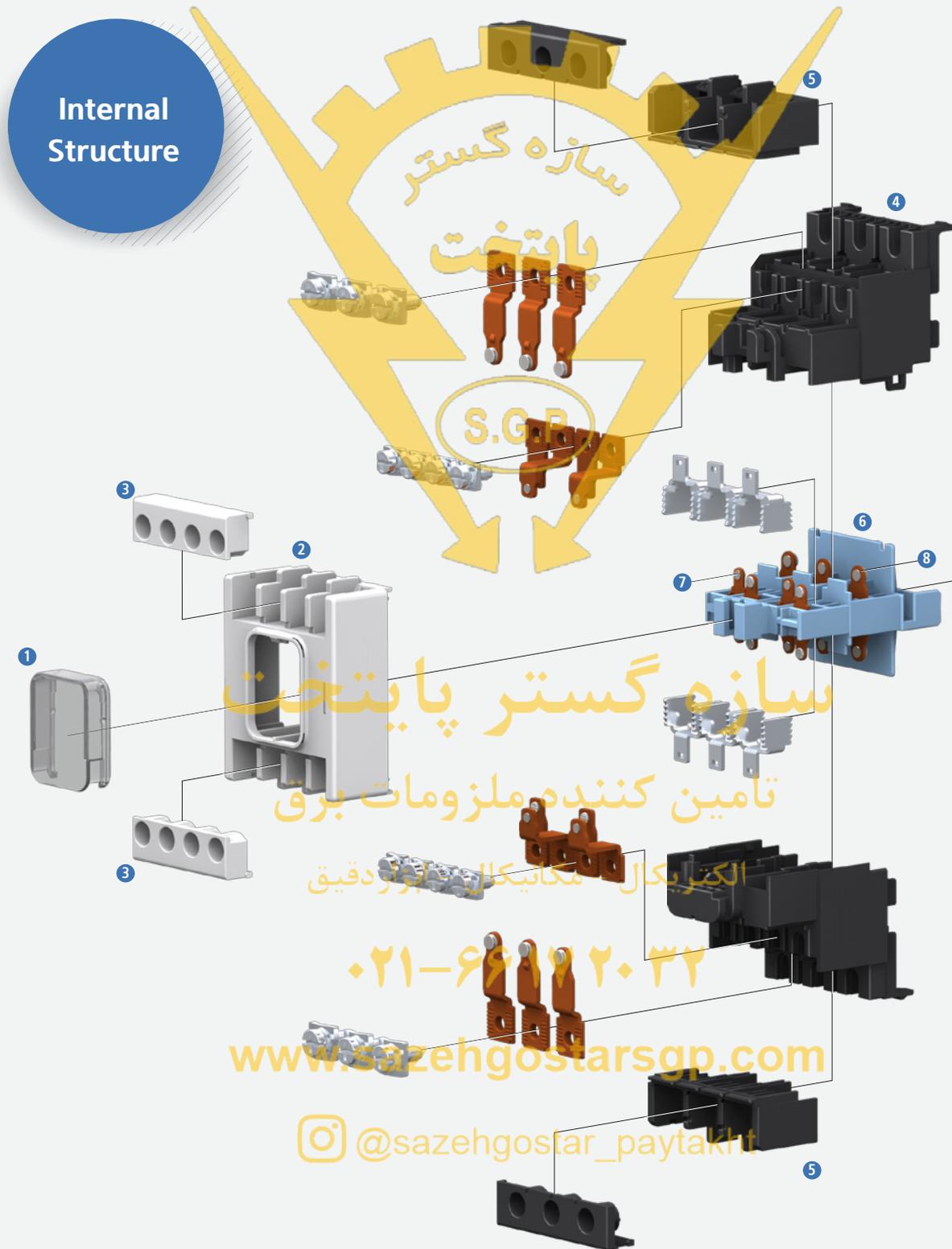


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Magnetic Contactor (HGC)

9 - 100 AF





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- 1 Safety Cover: Prevents pushing contact bridge arbitrary.
- 2 Top Cover: Assembles arc chamber, auxiliary contact part is stored inside.
- 3 Auxiliary Terminal Protection Cover: Protects users from electrical parts
- 4 Arc Chamber: Cuts off arc during on/off
- 5 Screw Terminal: Device to connect terminals
- 6 Contact Bridge: Assembled with a move contact and a move core to operate on/off. Assembly mounting hole is stored inside.
- 7 Auxiliary Contact: Operational point of auxiliary contact terminal
- 8 Moving Contact: Operational point of main contact terminal
- 9 Moving Core: Magnetic contactor is closed when coil is energized and it moves core slides into fixed core.
- 10 Return Spring: When coil is de-energized, it separates move core from fixed core.
- 11 Coil Assembly: Energized part to make fixed core an electromagnet
- 12 Fixed Core: The part where it becomes an electromagnet when coil is energized.
- 13 Coil Protection Cover: Protects the user from energized coil
- 14 Rubber Damper: Reduces on/off operation impact on magnetic contact.
- 15 Frame: The bottom part of magnetic contact that stores coil and fixed core

Magnetic Contactor (HGC)

115 - 800 AF

Easy Coil Replacement

- Easy maintenance and replacement without removal from switchgear
- Applying plastic case to fix coil unit
 - Minimizes movement of coil unit

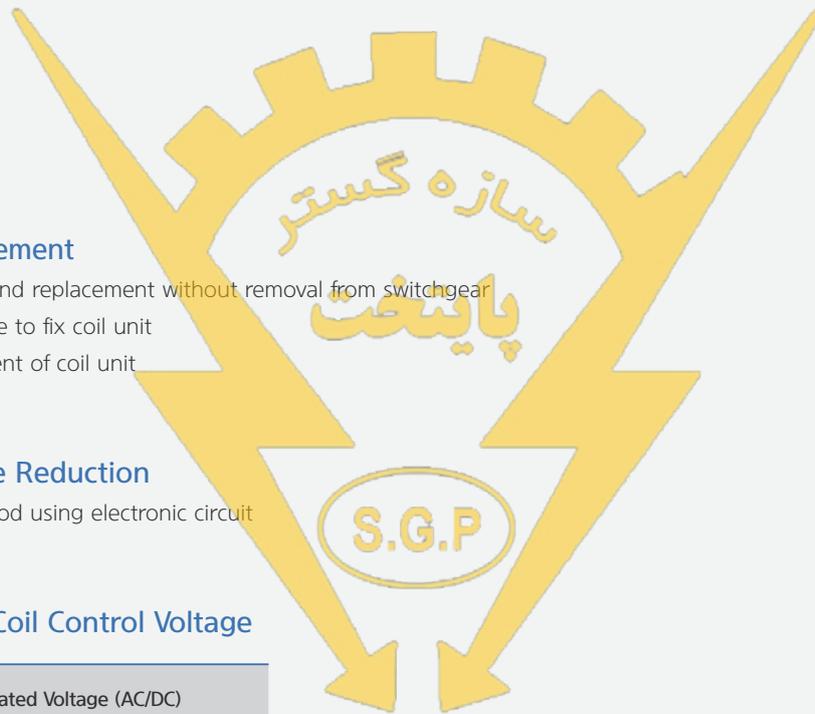
Design for Noise Reduction

- DC energizing method using electronic circuit

Wide Range of Coil Control Voltage

| Nominal Voltage | Rated Voltage (AC/DC) |
|-----------------|----------------------------------|
| 24 V | AC: 24 - 26 V, DC: 24 V |
| 48 V | AC: 44 - 52 V, DC: 48 V |
| 220 V | AC: 100 - 240 V, DC: 110 - 220 V |
| 440 V | AC: 380 - 450 V |

※ Rated voltage depending on the types
(Table is only for HGC115 - 265)



سازه گستر پایتخت

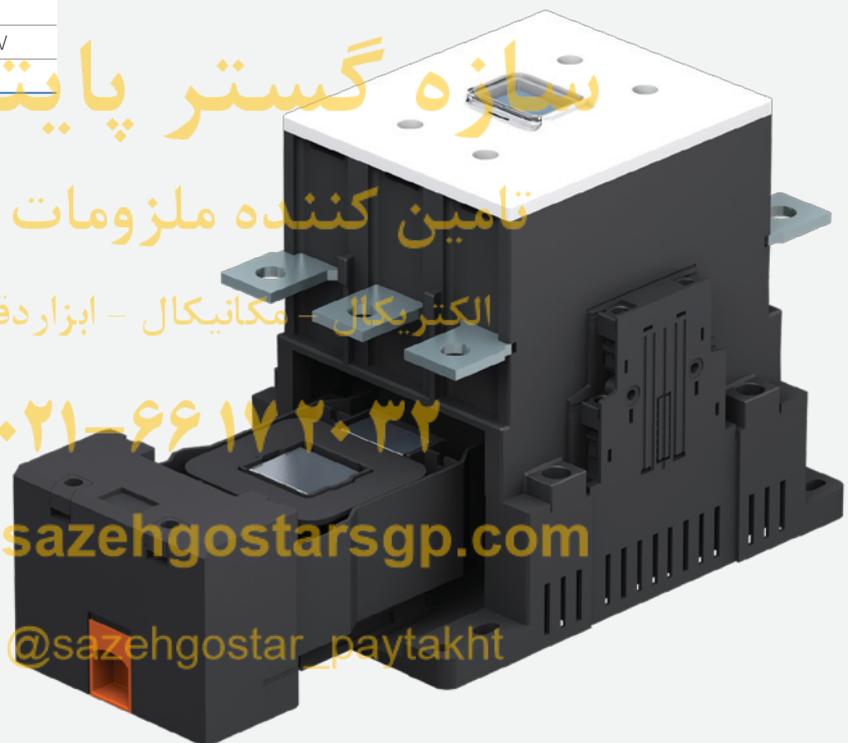
تأمین کننده ملزومات برق

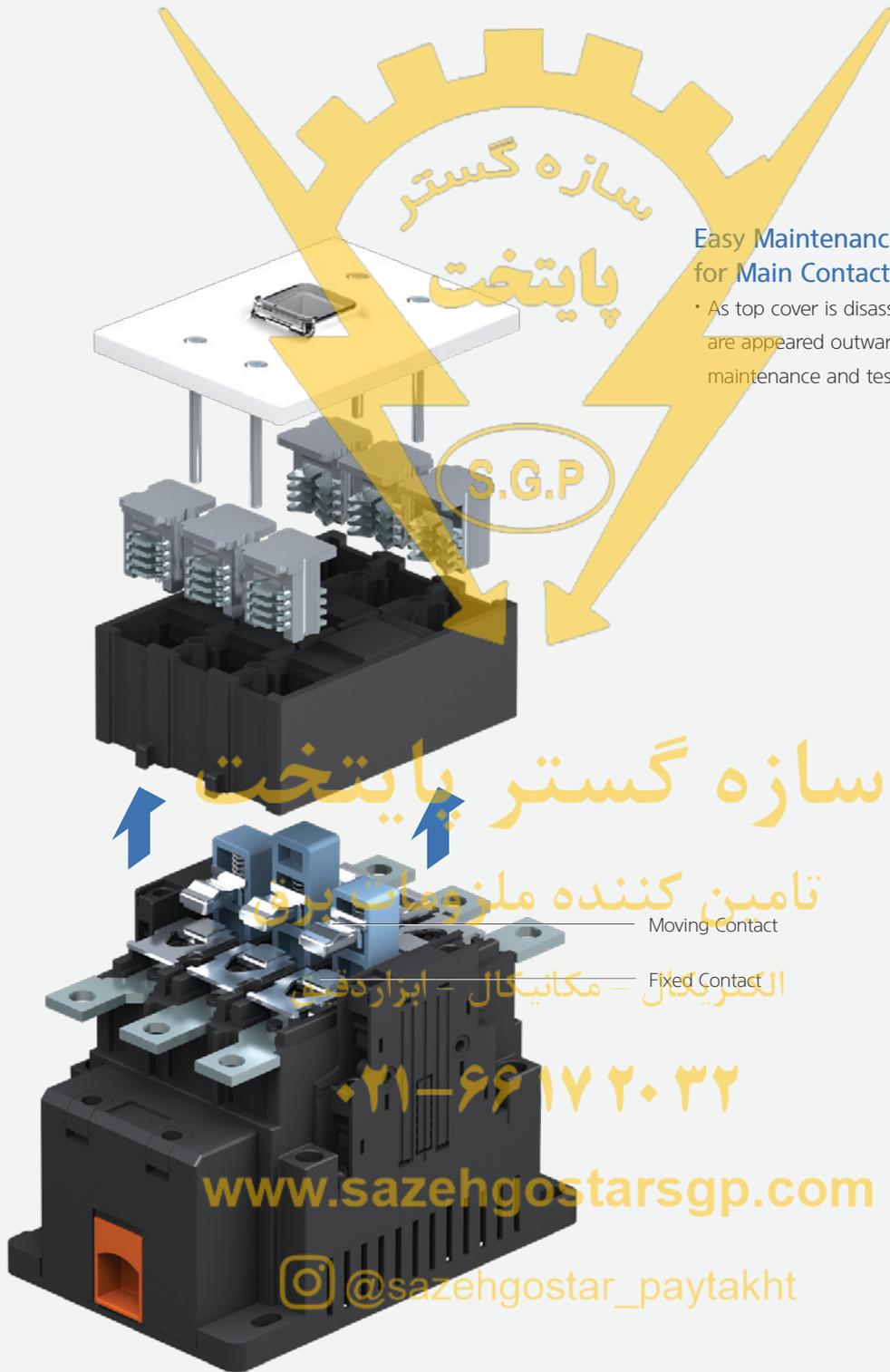
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Easy Maintenance and Replacement for Main Contacts

- As top cover is disassembled, main contacts are appeared outwardly to have easy maintenance and testing from outside.

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Moving Contact

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Fixed Contact

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Model Selection Table

Magnetic Contactors: 9 - 100 AF



| Model | | | HGC9 | HGC12 | HGC18 | HGC25 | HGC32 | HGC40 | |
|-----------------|--|-------------|------------------|--------|--------|-------------------|--------|---------|---------|
| IEC 60947-4 | Rated Insulation Voltage [Ui] | | V | 750 | 750 | 750 | 750 | 750 | |
| | Rated Operational Voltage [Ue] | | V | 690 | 690 | 690 | 690 | 690 | |
| | Rated Impulse Withstand Voltage [Uimp] | | kV | 6 | 6 | 6 | 6 | 6 | |
| | Rated Thermal Current [Ith] (AC1) | | A | 25 | 25 | 40 | 45 | 55 | 60 |
| | AC3 | 200 - 240 V | kW/A | 2.5/9 | 3.5/12 | 4.5/18 | 5.5/25 | 7.5/32 | 11/40 |
| | | 380 - 440 V | | 4/9 | 5.5/12 | 7.5/18 | 11/25 | 15/32 | 18.5/40 |
| | | 500 - 550 V | | 4/7 | 7.5/12 | 8.5/13 | 15/22 | 18.5/28 | 22/32 |
| | | 660 - 690 V | | 4/6 | 7.5/9 | 7.5/9 | 15/17 | 18.5/20 | 22/23 |
| | | 1,000 V | | - | - | - | - | - | - |
| | Lifetime | Electrical | 10,000 | 250 | 250 | 250 | 250 | 200 | 200 |
| Mechanical | | Times | 1,500 | 1,500 | 1,500 | 1,500 | 1,500 | 1,500 | |
| AC4 | 200 - 240 V | kW/A | 1.5/8 | 2.2/11 | 3.7/16 | 3.7/18 | 4.5/22 | 5.5/25 | |
| | 380 - 440 V | | 2.2/6 | 4/9 | 4/11 | 5.5/13 | 7.5/17 | 11/24 | |
| | Electrical Lifetime | 10,000 | 3 | 3 | 3 | 3 | 3 | 3 | |
| Mounting Method | | | Screw & DIN-Rail | | | Screw & DIN-Rail | | | |
| Contacts | Main | AC | 1NO1NC or 2NO2NC | | | 1NO1NC or 2NO2NC | | | |
| | | DC | 1NO1NC or 2NO2NC | | | 1NO1NC or 2NO2NC | | | |
| | Auxilliary | AC | 2NO2NC | | | 2NO2NC | | | |
| | | DC | 2NO2NC | | | 2NO2NC | | | |
| Dimensions | AC | W x H x D | mm | | | 45 x 94.2 x 91.1 | | | |
| | DC | | 45 x 94.2 x 124 | | | 45 x 99.6 x 129.5 | | | |

| Model | | | HGC50 | HGC65 | HGC75 | HGC85 | HGC100 | |
|-----------------|--|-------------|------------------|-------|---------|------------------|--------|--------|
| IEC 60947 | Rated Insulation Voltage [Ui] | | V | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |
| | Rated Operational Voltage [Ue] | | V | 690 | 690 | 690 | 690 | 690 |
| | Rated Impulse Withstand Voltage [Uimp] | | kV | 8 | 8 | 8 | 8 | 8 |
| | Rated Thermal Current [Ith] (AC1) | | A | 70 | 85 | 115 | 125 | 145 |
| | AC3 | 200 - 240 V | kW/A | 15/50 | 18.5/65 | 22/75 | 25/85 | 30/100 |
| | | 380 - 440 V | | 22/50 | 30/65 | 37/75 | 45/85 | 55/100 |
| | | 500 - 550 V | | 30/43 | 33/60 | 37/64 | 50/75 | 55/85 |
| | | 660 - 690 V | | 30/28 | 33/35 | 37/42 | 45/45 | 50/65 |
| | | 1,000 V | | - | - | - | - | - |
| | Lifetime | Electrical | 10,000 | 200 | 200 | 200 | 200 | 200 |
| Mechanical | | Times | 1,500 | 1,500 | 1,000 | 1,000 | 1,000 | |
| AC4 | 200 - 240 V | kW/A | 7.5/35 | 11/50 | 13/55 | 15/65 | 17/72 | |
| | 380 - 440 V | | 15/32 | 22/47 | 25/52 | 30/62 | 33/68 | |
| | Electrical Lifetime | 10,000 | 3 | 3 | 3 | 3 | 3 | |
| Mounting Method | | | Screw & DIN-Rail | | | Screw & DIN-Rail | | |
| Contacts | Main | AC | 1NO1NC or 2NO2NC | | | 1NO1NC or 2NO2NC | | |
| | | DC | 2NO1NC | | | 2NO1NC | | |
| | Auxilliary | AC | 2NO2NC | | | 2NO2NC | | |
| | | DC | 1NO1NC | | | 1NO1NC | | |
| Dimensions | AC | W x H x D | mm | | | 55 x 123.6 x 129 | | |
| | DC | | 55 x 123.6 x 129 | | | 70 x 146 x 153 | | |

Thermal Overload Relays: 18 - 100 AF



| Model (Basic) | | HGT18 | HGT40 | HGT65 | HGT100 |
|---|--------------|--------------------|--------------------|--------------------|--------------------|
| 3 Phase, 2 Elements | | HGT18H | HGT40H | HGT65H | HGT100H |
| 3 Phase, 3 Elements (Loss Phase Protection) | | HGT18K | HGT40K | HGT65K | HGT100K |
| Nominal Current | A | 0.12 - 18 | 7 - 40 | 7 - 65 | 17 - 100 |
| Setting Current (Min. - Max.) | A | 0.12 - 0.18 | 7 - 10 | 7 - 10 | 17 - 25 |
| | | 0.18 - 0.26 | 8 - 12 | 8 - 12 | 22 - 32 |
| | | 0.25 - 0.35 | 12 - 18 | 12 - 18 | 28 - 40 |
| | | 0.34 - 0.5 | 15 - 22 | 15 - 22 | 34 - 50 |
| | | 0.5 - 0.7 | 17 - 25 | 17 - 25 | 45 - 65 |
| | | 0.6 - 0.9 | 22 - 32 | 22 - 32 | 52 - 75 |
| | | 0.8 - 1.2 | 28 - 40 | 28 - 40 | 59 - 85 |
| | | 1.1 - 1.6 | | 34 - 50 | 70 - 100 |
| | | 1.5 - 2.1 | | 45 - 65 | |
| | | 2 - 3 | | | |
| | | 2.8 - 4.2 | | | |
| | | 3 - 5 | | | |
| | | 4 - 6 | | | |
| 5.6 - 8 | | | | | |
| 6 - 9 | | | | | |
| 8 - 12 | | | | | |
| 12 - 18 | | | | | |
| Auxiliary Contacts | | 1NO1NC | 1NO1NC | 1NO1NC | 1NO1NC |
| Reset | | Manual & Automatic | Manual & Automatic | Manual & Automatic | Manual & Automatic |
| Dimensions | W x H x D mm | 45 x 78.2 x 82.7 | 45 x 80.7 x 95.5 | 55 x 89.3 x 110.7 | 70 x 105 x 128.1 |

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Model Selection Table

Magnetic Contactors: 115 - 800 AF



| Model | | | HGC115 | HGC130 | HGC150 | HGC185 | HGC225 | HGC265 | | |
|-----------------|--|-------------|-------------------|--------|--------|-------------------|--------|---------|---------|---------|
| IEC 60947-4 | Rated Insulation Voltage [U _i] | | V | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | |
| | Rated Operational Voltage [U _e] | | V | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | |
| | Rated Impulse Withstand Voltage [U _{imp}] | | kV | 8 | 8 | 8 | 8 | 8 | 8 | |
| | Rated Thermal Current [I _{th}] (AC1) | | A | 160 | 180 | 210 | 275 | 315 | 350 | |
| | AC3 | 200 - 240 V | | kW/A | 37/115 | 40/130 | 45/150 | 55/185 | 75/225 | 80/265 |
| | | 380 - 440 V | | kW/A | 60/115 | 65/130 | 75/150 | 90/185 | 132/225 | 147/265 |
| | | 500 - 550 V | | kW/A | 59/100 | 70/120 | 90/140 | 110/180 | 132/200 | 150/225 |
| | | 660 - 690 V | | kW/A | 55/65 | 75/82 | 90/120 | 110/120 | 132/150 | 160/173 |
| | | 1,000 V | | kW/A | 65/50 | 75/54 | 90/66 | 110/78 | 132/96 | 160/113 |
| | Lifetime | Electrical | 10,000 Times | 100 | 100 | 100 | 100 | 100 | 100 | |
| Mechanical | | Times | 500 | 500 | 500 | 500 | 500 | 500 | | |
| AC4 | 200 - 240 V | | kW/A | 19/80 | 22/93 | 30/125 | 37/150 | 45/185 | 50/200 | |
| | 380 - 440 V | | kW/A | 37/75 | 45/90 | 55/110 | 75/150 | 90/185 | 102/200 | |
| | Electrical Lifetime | | 10,000 Times | 3 | 3 | 3 | 3 | 3 | 3 | |
| Mounting Method | | | Screw | | | Screw | | | | |
| Contacts | Main | | 2NO2NC | | | 2NO2NC | | | | |
| | Auxiliary | | 2NO2NC | | | 2NO2NC | | | | |
| Dimensions | W x H x D | mm | 103 x 155 x 145.1 | | | 138 x 204 x 174.2 | | | | |

| Model | | | HGC300 | HGC400 | HGC500 | HGC630 | HGC800 | | |
|-----------------|--|-------------|-----------------|---------|---------|-------------------|---------|---------|---------|
| IEC 60947 | Rated Insulation Voltage [U _i] | | V | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | |
| | Rated Operational Voltage [U _e] | | V | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | |
| | Rated Impulse Withstand Voltage [U _{imp}] | | kV | 8 | 8 | 8 | 8 | 8 | |
| | Rated Thermal Current [I _{th}] (AC1) | | A | 400 | 500 | 550 | 750 | 900 | |
| | AC3 | 200 - 240 V | | kW/A | 90/300 | 125/400 | 140/500 | 190/630 | 220/800 |
| | | 380 - 440 V | | kW/A | 160/300 | 220/400 | 250/500 | 330/630 | 440/800 |
| | | 500 - 550 V | | kW/A | 200/273 | 250/300 | 300/426 | 330/500 | 500/720 |
| | | 660 - 690 V | | kW/A | 200/220 | 250/300 | 335/360 | 400/412 | 500/630 |
| | | 1,000 V | | kW/A | 200/141 | 250/178 | 275/192 | 300/213 | 400/284 |
| | Lifetime | Electrical | 10,000 Times | 100 | 100 | 50 | 50 | 50 | |
| Mechanical | | Times | 500 | 500 | 500 | 500 | 500 | | |
| AC4 | 200 - 240 V | | kW/A | 55/220 | 75/300 | 90/350 | 110/400 | 160/630 | |
| | 380 - 440 V | | kW/A | 110/220 | 150/300 | 175/350 | 200/400 | 300/630 | |
| | Electrical Lifetime | | 10,000 Times | 3 | 3 | 3 | 3 | 3 | |
| Mounting Method | | | Screw | | | Screw | | | |
| Contacts | Main | | 2NO2NC | | | 2NO2NC | | | |
| | Auxiliary | | 2NO2NC | | | 2NO2NC | | | |
| Dimensions | W x H x D | mm | 163 x 243 x 203 | | | 276 x 314 x 255.3 | | | |

Thermal Overload Relays: 150 - 800 AF



| Model (Basic) | | | HGT150 | HGT265 | HGT500 | HGT800 |
|---|-----------|----|--------------------|--------------------|---------------------|--------------------|
| 3 Phase, 2 Elements | | | HGT150H | HGT265H | HGT500H | HGT800H |
| 3 Phase, 3 Elements (Loss Phase Protection) | | | HGT150K | HGT265K | HGT500K | HGT800K |
| Nominal Current | A | | 48 - 150 | 48 - 265 | 90 - 500 | 378 - 800 |
| Setting Current (Min. - Max.) | A | | 48 - 80 | 48 - 80 | 90 - 150 | 378 - 630 |
| | | | 69 - 115 | 69 - 115 | 111 - 185 | 480 - 800 |
| | | | 78 - 130 | 78 - 130 | 135 - 225 | |
| | | | 90 - 150 | 90 - 150 | 159 - 265 | |
| Auxilliary Contacts | | | 1NO1NC | 1NO1NC | 1NO1NC | 1NO1NC |
| Reset | | | Manual & Automatic | Manual & Automatic | Manual & Automatic | Manual & Automatic |
| Dimensions | W x H x D | mm | 180 x 159 x 179.3 | 180 x 185 x 179.3 | 180 x 205.2 x 179.3 | 245 x 197 x 209.9 |

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Rating and Selection

Magnetic Contactor: HGC 9 - 18 A

Rating



| Model | | | | HGC9 | HGC12 | HGC18 | |
|---------------------------------------|--|-------------|------------------|------------------|-------|--------|--------|
| IEC 60947-4 | Rated Insulation Voltage [U _i] | V | | 750 | 750 | 750 | |
| | Rated Operational Voltage [U _e] | V | | 690 | 690 | 690 | |
| | Rated Impulse Withstand Voltage [U _{imp}] | kV | | 6 | 6 | 6 | |
| | Rated Thermal Current [I _{th}] (AC1) | A | | 25 | 25 | 40 | |
| | AC3 | 200 - 240 V | kW/A | | 2.5/9 | 3.5/12 | 4.5/18 |
| | | 380 - 440 V | | | 4/9 | 5.5/12 | 7.5/18 |
| | | 500 - 550 V | | | 4/7 | 7.5/12 | 8.5/13 |
| | | 660 - 690 V | | | 4/6 | 7.5/9 | 7.5/9 |
| | | 1,000 V | | | - | - | - |
| | Lifetime | Electrical | 10,000 | | 250 | 250 | 250 |
| | | Mechanical | Times | | 1,500 | 1,500 | 1,500 |
| | AC4 | 200 - 240 V | kW/A | | 1.5/8 | 2.2/11 | 3.7/16 |
| | | 380 - 440 V | | | 2.2/6 | 4/9 | 4/11 |
| | Electrical Lifetime | | | 10,000 Times | 3 | 3 | 3 |
| | AC1,2,3 Operating Frequency (per hour) | 100 % load | Times | | 1,000 | 1,000 | 1,000 |
| 50 % load (DC) | | | | 2,000 | 2,000 | 2,000 | |
| 20 % load (DC) | | | | 3,600 | 3,600 | 3,600 | |
| AC4 Operation Frequency (per hour) | 100 % load | Times | | 300 | 300 | 300 | |
| | 50 % load | | | 600 | 600 | 600 | |
| Making Capacity | 220 V | A | | 110 | 130 | 180 | |
| | 440 V | | | 90 | 120 | 180 | |
| Breaking Capacity | 220 V | A | | 88 | 104 | 144 | |
| | 440 V | | | 72 | 96 | 144 | |
| Mounting Method | | | | Screw & DIN-Rail | | | |
| Contacts | Main | AC | 1NO1NC or 2NO2NC | | | | |
| | | DC | 1NO1NC or 2NO2NC | | | | |
| | Auxiliary | AC | 2NO2NC | | | | |
| | | DC | 2NO2NC | | | | |
| Dimensions | AC | W x H x D | mm | | | | |
| Weight | AC | kg | | 0.4 | | | |
| | DC | | | 0.6 | | | |
| | AC/DC | | | - | | | |
| Contact Arrangement | | | | | | | |
| Main | Main | 3a | | | | | |
| | Auxiliary | 2a2b | | | | | |
| Main + Auxiliary (2a2b) | Main | 3a | | | | | |
| | Auxiliary | 4a4b | | | | | |

※ - Auxiliary Contacts Usage: Please refer to 48 - 49 page

- 1) Possible auxiliary contacts combination -> A Contact: maximum 6a, B Contact: maximum 4b
- 2) When using 4a4b by side auxiliary block, front auxiliary block is not applicable.
- 3) When using main 2a2b, front auxiliary block is applicable.

Accessories

| Auxiliary Contacts | Other Accessories |
|---|---|
| | |
| <p>1 Auxilliary Contact Block (Front Mounting) HGC TB - 48 page</p> <p>2 Auxilliary Contact Block (Side Mounting) HGC SB 40 - 48 page</p> | <p>3 Mechanical Latching Block HGC LB 100 - 51 page</p> <p>4 Timer HGC ET - 53 page</p> <p>5 Mechanical Interlock Block HGC IU 40 - 50 page</p> <p>6 Surge Absorber HGC RC/CD 40 - 52 page</p> <p>7 Thermal Overload Relay HGT 18 - 36 page</p> |

Order Information

• Standard Order (w/protection cover, w/o accessories) / Auxiliary Contacts: 2NO2NC

| Operation Voltage (V) | HGC9 | HGC12 | HGC18 | |
|-----------------------|------|----------------|-----------------|-----------------|
| AC (60 Hz) | 24 | HGC9 22NS A24 | HGC12 22NS A24 | HGC18 22NS A24 |
| | 48 | HGC9 22NS A48 | HGC12 22NS A48 | HGC18 22NS A48 |
| | 110 | HGC9 22NS A110 | HGC12 22NS A110 | HGC18 22NS A110 |
| | 120 | HGC9 22NS A120 | HGC12 22NS A120 | HGC18 22NS A120 |
| | 220 | HGC9 22NS A220 | HGC12 22NS A220 | HGC18 22NS A220 |
| | 240 | HGC9 22NS A240 | HGC12 22NS A240 | HGC18 22NS A240 |
| | 380 | HGC9 22NS A380 | HGC12 22NS A380 | HGC18 22NS A380 |
| | 440 | HGC9 22NS A440 | HGC12 22NS A440 | HGC18 22NS A440 |
| AC (50 Hz) | 24 | HGC9 22NS X24 | HGC12 22NS X24 | HGC18 22NS X24 |
| | 48 | HGC9 22NS X48 | HGC12 22NS X48 | HGC18 22NS X48 |
| | 110 | HGC9 22NS X110 | HGC12 22NS X110 | HGC18 22NS X110 |
| | 120 | HGC9 22NS X120 | HGC12 22NS X120 | HGC18 22NS X120 |
| | 220 | HGC9 22NS X220 | HGC12 22NS X220 | HGC18 22NS X220 |
| | 240 | HGC9 22NS X240 | HGC12 22NS X240 | HGC18 22NS X240 |
| | 380 | HGC9 22NS X380 | HGC12 22NS X380 | HGC18 22NS X380 |
| | 440 | HGC9 22NS X440 | HGC12 22NS X440 | HGC18 22NS X440 |
| DC | 24 | HGC9 22NS D24 | HGC12 22NS D24 | HGC18 22NS D24 |
| | 48 | HGC9 22NS D48 | HGC12 22NS D48 | HGC18 22NS D48 |
| | 110 | HGC9 22NS D110 | HGC12 22NS D110 | HGC18 22NS D110 |
| | 120 | HGC9 22NS D120 | HGC12 22NS D120 | HGC18 22NS D120 |
| | 220 | HGC9 22NS D220 | HGC12 22NS D220 | HGC18 22NS D220 |

Rating and Selection

Magnetic Contactor: HGC 25 - 40 A

Rating



| Model | | HGC25 | HGC32 | HGC40 | |
|--|--|------------------|-------------------|--------|---------|
| IEC 60947 | Rated Insulation Voltage [U _i] | V | 750 | 750 | |
| | Rated Operational Voltage [U _e] | V | 690 | 690 | |
| | Rated Impulse Withstand Voltage [U _{imp}] | kV | 6 | 6 | |
| | Rated Thermal Current [I _{th}] (AC1) | A | 45 | 55 | |
| | AC3 | 200 - 240 V | kW/A | 5.5/25 | 7.5/32 |
| | | 380 - 440 V | | 11/25 | 15/32 |
| | | 500 - 550 V | | 15/22 | 18.5/28 |
| | | 660 - 690 V | | 15/17 | 18.5/20 |
| | | 1,000 V | | - | - |
| | Lifetime | Electrical | 10,000 Times | 250 | 200 |
| | | Mechanical | | 1,500 | 1,500 |
| | AC4 | 200 - 240 V | kW/A | 3.7/18 | 4.5/22 |
| | | 380 - 440 V | | 5.5/13 | 7.5/17 |
| | Electrical Lifetime | | 10,000 Times | 3 | 3 |
| AC1,2,3 Operating Frequency (per hour) | 100 % load | Times | 1,000 | 1,000 | |
| | 50 % load (DC) | | 2,000 | 2,000 | |
| | 20 % load (DC) | | 3,600 | 3,600 | |
| AC4 Operation Frequency (per hour) | 100 % load | Times | 300 | 300 | |
| | 50 % load | | 600 | 600 | |
| Making Capacity | 220 V | A | 250 | 320 | |
| | 440 V | | 250 | 320 | |
| Breaking Capacity | 220 V | A | 200 | 256 | |
| | 440 V | | 200 | 256 | |
| Mounting Method | | Screw & DIN-Rail | | | |
| Contacts | Main | AC | 1NO1NC or 2NO2NC | | |
| | | DC | 1NO1NC or 2NO2NC | | |
| | Auxiliary | AC | 2NO2NC | | |
| | | DC | 2NO2NC | | |
| Dimensions | AC | W x H x D mm | 45 x 99.6 x 96.6 | | |
| | DC | | 45 x 99.6 x 129.5 | | |
| | AC/DC | | - | | |
| Weight | AC | kg | 0.5 | | |
| | DC | | 0.65 | | |
| | AC/DC | | - | | |
| Contact Arrangement | | | | | |
| Main | Main | 3a | | | |
| | Auxiliary | 2a2b | | | |
| Main + Auxiliary (2a2b) | Main | 3a | | | |
| | Auxiliary | 4a4b | | | |

※ - Auxiliary Contacts Usage: Please refer to 48 - 49 page

- 1) Possible auxiliary contacts combination -> A Contact: maximum 6a, B Contact: maximum 4b
- 2) When using 4a4b by side auxiliary block, front auxiliary block is not applicable.
- 3) When using main 2a2b, front auxiliary block is applicable.

Accessories

| Auxilliary Contacts | | Other Accessories | |
|---|---|---|--|
| | | | |
| <p>1 Auxilliary Contact Block (Front Mounting) HGC TB - 48 page</p> <p>2 Auxilliary Contact Block (Side Mounting) HGC SB 40 - 48 page</p> | <p>3 Mechanical Latching Block HGC LB 100 - 51 page</p> <p>4 Timer HGC ET - 53 page</p> <p>5 Mechanical Interlock Block HGC IU 40 - 50 page</p> | <p>6 Surge Absorber HGC RC/CD 40 - 52 page</p> <p>7 Thermal Overload Relay HGT 40 - 38 page</p> | |

Order Information

• Standard Order (w/protection cover, w/o accessories) / Auxiliary Contacts: 2NO2NC

| Operation Voltage (V) | HGC25 | HGC32 | HGC40 | |
|-----------------------|-------|-----------------|-----------------|-----------------|
| AC (60 Hz) | 24 | HGC25 22NS A24 | HGC32 22NS A24 | HGC40 22NS A24 |
| | 48 | HGC25 22NS A48 | HGC32 22NS A48 | HGC40 22NS A48 |
| | 110 | HGC25 22NS A110 | HGC32 22NS A110 | HGC40 22NS A110 |
| | 120 | HGC25 22NS A120 | HGC32 22NS A120 | HGC40 22NS A120 |
| | 220 | HGC25 22NS A220 | HGC32 22NS A220 | HGC40 22NS A220 |
| | 240 | HGC25 22NS A240 | HGC32 22NS A240 | HGC40 22NS A240 |
| | 380 | HGC25 22NS A380 | HGC32 22NS A380 | HGC40 22NS A380 |
| | 440 | HGC25 22NS A440 | HGC32 22NS A440 | HGC40 22NS A440 |
| AC (50 Hz) | 24 | HGC25 22NS X24 | HGC32 22NS X24 | HGC40 22NS X24 |
| | 48 | HGC25 22NS X48 | HGC32 22NS X48 | HGC40 22NS X48 |
| | 110 | HGC25 22NS X110 | HGC32 22NS X110 | HGC40 22NS X110 |
| | 120 | HGC25 22NS X120 | HGC32 22NS X120 | HGC40 22NS X120 |
| | 220 | HGC25 22NS X220 | HGC32 22NS X220 | HGC40 22NS X220 |
| | 240 | HGC25 22NS X240 | HGC32 22NS X240 | HGC40 22NS X240 |
| | 380 | HGC25 22NS X380 | HGC32 22NS X380 | HGC40 22NS X380 |
| | 440 | HGC25 22NS X440 | HGC32 22NS X440 | HGC40 22NS X440 |
| DC | 24 | HGC25 22NS D24 | HGC32 22NS D24 | HGC40 22NS D24 |
| | 48 | HGC25 22NS D48 | HGC32 22NS D48 | HGC40 22NS D48 |
| | 110 | HGC25 22NS D110 | HGC32 22NS D110 | HGC40 22NS D110 |
| | 120 | HGC25 22NS D120 | HGC32 22NS D120 | HGC40 22NS D120 |
| | 220 | HGC25 22NS D220 | HGC32 22NS D220 | HGC40 22NS D220 |

Rating and Selection

Magnetic Contactor: HGC 50 - 65 A

Rating

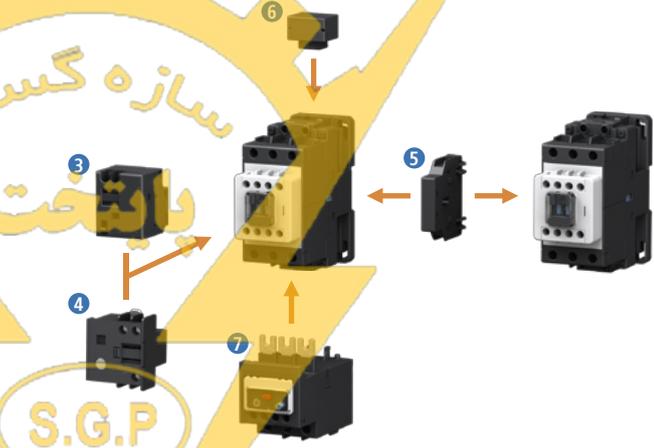


| Model | | HGC50 | | HGC65 | | |
|-------------------------------------|--|------------------|--------------------|---------------|---------|--|
| IEC 60947 | Rated Insulation Voltage [U _i] | V | 1,000 | 1,000 | | |
| | Rated Operational Voltage [U _e] | V | 690 | 690 | | |
| | Rated Impulse Withstand Voltage [U _{imp}] | kV | 8 | 8 | | |
| | Rated Thermal Current [I _{th}] (AC1) | A | 70 | 85 | | |
| | AC3 | 200 - 240 V | kW/A | 15/50 | 18.5/65 | |
| | | 380 - 440 V | | 22/50 | 30/65 | |
| | | 500 - 550 V | | 30/43 | 33/60 | |
| | | 660 - 690 V | | 30/28 | 33/35 | |
| | | 1,000 V | | - | - | |
| | Lifetime | Electrical | 10,000 Times | 200 | 200 | |
| | | Mechanical | | 1,500 | 1,500 | |
| | AC4 | 200 - 240 V | kW/A | 7.5/35 | 11/50 | |
| | | 380 - 440 V | | 15/32 | 22/47 | |
| | Electrical Lifetime | | 10,000 Times | 3 | 3 | |
| | AC1,2,3 | 100 % load | Times | 750 | 750 | |
| Operating Frequency (per hour) | 50 % load (DC) | | 1,500 (900) | 1,500 (900) | | |
| | 20 % load (DC) | | 3,000 (1,200) | 3,000 (1,200) | | |
| AC4 Operationg Frequency (per hour) | 100 % load | Times | 250 | 250 | | |
| | 50 % load | | 500 | 500 | | |
| Making Capacity | 220 V | A | 500 | 650 | | |
| | 440 V | | 500 | 650 | | |
| Breaking Capacity | 220 V | A | 400 | 520 | | |
| | 440 V | | 400 | 520 | | |
| Mounting Method | | Screw & DIN-Rail | | | | |
| Contacts | Main | AC | 1NO1NC or 2NO2NC | | | |
| | | DC | 2NO1NC | | | |
| | Auxilliary | AC | 2NO2NC | | | |
| | | DC | 1NO1NC | | | |
| | AC/DC | - | | | | |
| Dimensions | AC | W x H x D mm | 55 x 127.6 x 129.1 | | | |
| | DC | | 55 x 127.6 x 129.1 | | | |
| | AC/DC | | - | | | |
| Weight | AC | kg | 0.8 | | | |
| | DC | | 0.8 | | | |
| | AC/DC | | - | | | |
| Contact Arrangement | | | | | | |
| Main | Main | 3a | | | | |
| | Auxilliary | 2a2b | | | | |
| Main + Auxilliary (2a2b) | Main | 3a | | | | |
| | Auxilliary | 4a4b | | | | |

※ - Auxiliary Contacts Usage: Please refer to 48 - 49 page

- 1) Possible auxiliary contacts combination -> A Contact: maximum 6a, B Contact: maximum 4b
- 2) When using 4a4b by side auxiliary block, front auxiliary block is not applicable.
- 3) When using main 2a2b, front auxiliary block is applicable.

Accessories

| Auxilliary Contacts | Other Accessories |
|--|--|
|  <p> 1 Auxilliary Contact Block (Front Mounting) HGC TB - 48 page 2 Auxilliary Contact Block (Side Mounting) HGC SB 100 - 48 page </p> |  <p> 3 Mechanical Latching Block HGC LB 100 - 51 page 4 Timer HGC ET - 53 page 5 Mechanical Interlock Block HGC IU 100 - 50 page 6 Surge Absorber HGC RC/CD100 - 52 page 7 Thermal Overload Relay HGT 65 - 38 page </p> |

Order Information

• Standard Order (w/protection cover, w/o accessories) / Auxilliary Contacts: 2NO2NC

| Operation Voltage (V) | HGC50 | HGC65 | |
|-----------------------|-------|-----------------|-----------------|
| AC (60 Hz) | 24 | HGC50 22NS A24 | HGC65 22NS A24 |
| | 48 | HGC50 22NS A48 | HGC65 22NS A48 |
| | 110 | HGC50 22NS A110 | HGC65 22NS A110 |
| | 120 | HGC50 22NS A120 | HGC65 22NS A120 |
| | 220 | HGC50 22NS A220 | HGC65 22NS A220 |
| | 240 | HGC50 22NS A240 | HGC65 22NS A240 |
| | 380 | HGC50 22NS A380 | HGC65 22NS A380 |
| | 440 | HGC50 22NS A440 | HGC65 22NS A440 |
| AC (50 Hz) | 24 | HGC50 22NS X24 | HGC65 22NS X24 |
| | 48 | HGC50 22NS X48 | HGC65 22NS X48 |
| | 110 | HGC50 22NS X110 | HGC65 22NS X110 |
| | 120 | HGC50 22NS X120 | HGC65 22NS X120 |
| | 220 | HGC50 22NS X220 | HGC65 22NS X220 |
| | 240 | HGC50 22NS X240 | HGC65 22NS X240 |
| | 380 | HGC50 22NS X380 | HGC65 22NS X380 |
| | 440 | HGC50 22NS X440 | HGC65 22NS X440 |
| DC | 24 | HGC50 21NS D24 | HGC65 21NS D24 |
| | 48 | HGC50 21NS D48 | HGC65 21NS D48 |
| | 110 | HGC50 21NS D110 | HGC65 21NS D110 |
| | 120 | HGC50 21NS D120 | HGC65 21NS D120 |
| | 220 | HGC50 21NS D220 | HGC65 21NS D220 |

Rating and Selection

Magnetic Contactor: HGC 75 - 100 A

Rating

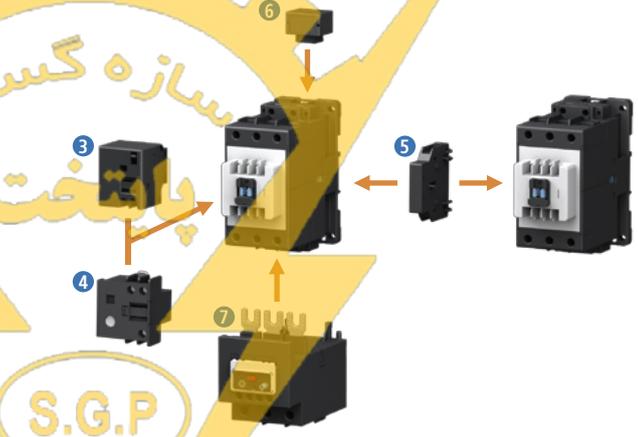


| Model | | HGC75 | HGC85 | HGC100 | | |
|---------------------------------------|--|------------------|------------------|--------|-------|--------|
| IEC 60947 | Rated Insulation Voltage [U _i] | V | 1,000 | 1,000 | 1,000 | |
| | Rated Operational Voltage [U _e] | V | 690 | 690 | 690 | |
| | Rated Impulse Withstand Voltage [U _{imp}] | kV | 8 | 8 | 8 | |
| | Rated Thermal Current [I _{th}] (AC1) | A | 115 | 125 | 145 | |
| | AC3 | 200 - 240 V | kW/A | 22/75 | 25/85 | 30/100 |
| | | 380 - 440 V | | 37/75 | 45/85 | 55/100 |
| | | 500 - 550 V | | 37/64 | 50/75 | 55/85 |
| | | 660 - 690 V | | 37/42 | 45/45 | 50/65 |
| | | 1,000 V | | - | - | - |
| | Lifetime | Electrical | 10,000 | 200 | 200 | 200 |
| | | Mechanical | Times | 1,000 | 1,000 | 1,000 |
| | AC4 | 200 - 240 V | kW/A | 13/55 | 15/65 | 17/72 |
| | | 380 - 440 V | | 25/52 | 30/62 | 33/68 |
| | Electrical Lifetime | 10,000 | Times | 3 | 3 | 3 |
| | AC1,2,3 Operating Frequency (per hour) | 100 % load | Times | 450 | 450 | 450 |
| 50 % load (DC) | | | 900 | 900 | 900 | |
| 20 % load (DC) | | | 1,800 | 1,800 | 1,800 | |
| AC4 Operation Frequency (per hour) | 100 % load | Times | 200 | 200 | 200 | |
| | 50 % load | | 400 | 400 | 400 | |
| Making Capacity | 220 V | A | 750 | 850 | 1,000 | |
| | 440 V | | 750 | 850 | 1,000 | |
| Breaking Capacity | 220 V | A | 600 | 680 | 800 | |
| | 440 V | | 600 | 680 | 800 | |
| Mounting Method | | Screw & DIN-Rail | | | | |
| Contacts | Main | AC | 1NO1NC or 2NO2NC | | | |
| | | DC | 2NO1NC | | | |
| | Auxilliary | AC | 2NO2NC | | | |
| | | DC | 1NO1NC | | | |
| Dimensions | AC | W x H x D mm | 70 x 146 x 153 | | | |
| | DC | | 70 x 146 x 153 | | | |
| | AC/DC | | - | | | |
| Weight | AC | kg | 1.3 | | | |
| | DC | | 1.3 | | | |
| | AC/DC | | - | | | |
| Contact Arrangement | | | | | | |
| Main | Main | 3a | | | | |
| | Auxilliary | 2a2b | | | | |
| Main + Auxilliary (2a2b) | Main | 3a | | | | |
| | Auxilliary | 4a4b | | | | |

※ - Auxiliary Contacts Usage: Please refer to 48 - 49 page

- 1) Possible auxiliary contacts combination -> A Contact: maximum 6a, B Contact: maximum 4b
- 2) When using 4a4b by side auxiliary block, front auxiliary block is not applicable.
- 3) When using main 2a2b, front auxiliary block is applicable.

Accessories

| Auxiliary Contacts | Other Accessories |
|--|---|
|  |  |
| <p>1 Auxilliary Contact Block (Front Mounting) HGC TB - 48 page</p> <p>2 Auxilliary Contact Block (Side Mounting) HGC SB 100 - 48 page</p> | <p>3 Mechanical Latching Block HGC LB 100 - 51 page</p> <p>4 Timer HGC ET - 53 page</p> <p>5 Mechanical Interlock Block HGC IU 100 - 50 page</p> <p>6 Surge Absorber HGC RC/CD100 - 52 page</p> <p>7 Thermal Overload Relay HGT 100 - 38 page</p> |

Order Information

• Standard Order (w/protection cover, w/o accessories) / Auxiliary Contacts: 2NO2NC

| Operation Voltage (V) | HGC75 | HGC85 | HG100 |
|-----------------------|-------|-----------------|------------------|
| AC (60 Hz) | 24 | HGC75 22NS A24 | HGC100 22NS A24 |
| | 48 | HGC75 22NS A48 | HGC100 22NS A48 |
| | 110 | HGC75 22NS A110 | HGC100 22NS A110 |
| | 120 | HGC75 22NS A120 | HGC100 22NS A120 |
| | 220 | HGC75 22NS A220 | HGC100 22NS A220 |
| | 240 | HGC75 22NS A240 | HGC100 22NS A240 |
| | 380 | HGC75 22NS A380 | HGC100 22NS A380 |
| | 440 | HGC75 22NS A440 | HGC100 22NS A440 |
| AC (50 Hz) | 24 | HGC75 22NS X24 | HGC100 22NS X24 |
| | 48 | HGC75 22NS X48 | HGC100 22NS X48 |
| | 110 | HGC75 22NS X110 | HGC100 22NS X110 |
| | 120 | HGC75 22NS X120 | HGC100 22NS X120 |
| | 220 | HGC75 22NS X220 | HGC100 22NS X220 |
| | 240 | HGC75 22NS X240 | HGC100 22NS X240 |
| | 380 | HGC75 22NS X380 | HGC100 22NS X380 |
| | 440 | HGC75 22NS X440 | HGC100 22NS X440 |
| DC | 24 | HGC75 21NS D24 | HGC100 21NS D24 |
| | 48 | HGC75 21NS D48 | HGC100 21NS D48 |
| | 110 | HGC75 21NS D110 | HGC100 21NS D110 |
| | 120 | HGC75 21NS D120 | HGC100 21NS D120 |
| | 220 | HGC75 21NS D220 | HGC100 21NS D220 |
| | 220 | HGC85 21NS D220 | HGC100 21NS D220 |

Rating and Selection

Magnetic Contactor: HGC 115 - 150 A

Rating



| Model | | | HGC115 | HGC130 | HGC150 | | |
|----------------------------|--|-------------|----------------------|--------|--------|--------|--------|
| IEC 60947-4 | Rated Insulation Voltage [U _i] | | V | 1,000 | 1,000 | 1,000 | |
| | Rated Operational Voltage [U _e] | | V | 1,000 | 1,000 | 1,000 | |
| | Rated Impulse Withstand Voltage [U _{imp}] | | kV | 8 | 8 | 8 | |
| | Rated Thermal Current [I _{th}] (AC1) | | A | 160 | 180 | 210 | |
| | AC3 | 200 - 240 V | | kW/A | 37/115 | 40/130 | 45/150 |
| | | 380 - 440 V | | | 60/115 | 65/130 | 75/150 |
| | | 500 - 550 V | | | 59/100 | 70/120 | 90/140 |
| | | 660 - 690 V | | | 55/65 | 75/82 | 90/120 |
| | | 1,000 V | | | 65/50 | 75/54 | 90/66 |
| | | Lifetime | Electrical | 10,000 | 100 | 100 | 100 |
| | Mechanical | | Times | 500 | 500 | 500 | |
| | AC4 | 200 - 240 V | | kW/A | 19/80 | 22/93 | 30/125 |
| 380 - 440 V | | | 37/75 | 45/90 | 55/110 | | |
| Electrical Lifetime | | 10,000 | 3 | 3 | 3 | | |
| AC1,2,3 | 100 % load | | Times | 450 | 450 | 450 | |
| | Operating Frequency | | | 900 | 900 | 900 | |
| | 50 % load (DC) | | | 1,800 | 1,800 | 1,800 | |
| AC4 Operatong | 100 % load | | Times | 200 | 200 | 200 | |
| | Frequency (per hour) | | | 400 | 400 | 400 | |
| Making Capacity | 220 V | | A | 1,150 | 1,300 | 1,500 | |
| | 440 V | | | 1,150 | 1,300 | 1,500 | |
| Breaking Capacity | 220 V | | A | 920 | 1,040 | 1,200 | |
| | 440 V | | | 920 | 1,040 | 1,200 | |
| Mounting Method | | | Screw | | | | |
| Contacts | Main | AC/DC | 2NO2NC | | | | |
| | Auxiliary ¹⁾ | AC/DC | 2NO2NC | | | | |
| Dimensions | AC/DC | W x H x D | mm 103 x 155 x 145.1 | | | | |
| Weight | AC/DC | kg | 2.7 | | | | |
| Contact Arrangement | | | | | | | |
| Main | Main | 3a | | | | | |
| | Auxiliary | 2a2b | | | | | |
| Main + Auxilliary (2a2b) | Main | 3a | | | | | |
| | Auxiliary | 4a4b | | | | | |

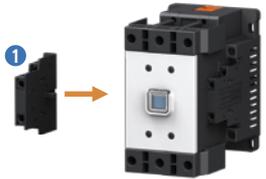
※ - Auxilliary Contacts Usage: Please refer to page 48 - 49

¹⁾ Maximum number of side auxilliary contacts

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Accessories

| Auxilliary Contacts | Other Accessories |
|--|--|
|  <p>1 Auxilliary Contact Block (Side mounting) HGC SB 800 - 48 page</p> |  <p>2 Mechanical Interlock Block HGC IU 265 - 50 page</p>  <p>3 Thermal Overload Relay HGT 150 - 40 page</p> |

Order Information

• Standard Order (w/protection cover, w/o accessories) / Auxiliary Contacts: 2NO2NC

| Voltage (V) | Voltage Band (V) | HGC115 | HGC130 | HGC150 |
|-------------|----------------------------|------------------|------------------|------------------|
| 24 | AC24 - 26 DC24 | HGC115 22NS F24 | HGC130 22NS F24 | HGC150 22NS F24 |
| 48 | AC44 - 52 DC48 | HGC115 22NS F48 | HGC130 22NS F48 | HGC150 22NS F48 |
| 220 | AC100 - 240 DC110 - 220 | HGC115 22NS F220 | HGC130 22NS F220 | HGC150 22NS F220 |
| 440 | AC380 - 450 | HGC115 22NS F440 | HGC130 22NS F440 | HGC150 22NS F440 |

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Rating and Selection

Magnetic Contactor: HGC 185 - 265 A

Rating



| Model | | | HGC185 | HGC225 | HGC265 | | |
|--|--|---------------------|----------------------|--------------|---------|---------|---------|
| IEC 60947 | Rated Insulation Voltage [U _i] | | V | 1,000 | 1,000 | 1,000 | |
| | Rated Operational Voltage [U _e] | | V | 1,000 | 1,000 | 1,000 | |
| | Rated Impulse Withstand Voltage [U _{imp}] | | kV | 8 | 8 | 8 | |
| | Rated Thermal Current [I _{th}] (AC1) | | A | 275 | 315 | 350 | |
| | AC3 | 200 - 240 V | | kW/A | 55/185 | 75/225 | 80/265 |
| | | 380 - 440 V | | | 90/185 | 132/225 | 147/265 |
| | | 500 - 550 V | | | 110/180 | 132/200 | 150/225 |
| | | 660 - 690 V | | | 110/120 | 132/150 | 160/173 |
| | | 1,000 V | | | 110/78 | 132/96 | 160/113 |
| | | Lifetime | Electrical | 10,000 | 100 | 100 | 100 |
| | Mechanical | | Times | 500 | 500 | 500 | |
| | AC4 | 200 - 240 V | | kW/A | 37/150 | 45/185 | 50/200 |
| | | 380 - 440 V | | | 75/150 | 90/185 | 102/200 |
| | | Electrical Lifetime | | 10,000 Times | 3 | 3 | 3 |
| AC1,2,3 Operating Frequency (per hour) | 100 % load | | Times | 300 | 300 | 300 | |
| | 50 % load (DC) | | | 600 | 600 | 600 | |
| | 20 % load (DC) | | | 1,200 | 1,200 | 1,200 | |
| AC4 Operation Frequency (per hour) | 100 % load | | Times | 200 | 200 | 200 | |
| | 50 % load | | | 400 | 400 | 400 | |
| Making Capacity | 220 V | | A | 1,850 | 2,250 | 2,650 | |
| | 440 V | | | 1,850 | 2,250 | 2,650 | |
| Breaking Capacity | 220 V | | A | 1,480 | 1,800 | 2,120 | |
| | 440 V | | | 1,480 | 1,800 | 2,120 | |
| Mounting Method | | | Screw | | | | |
| Contacts | Main | AC/DC | 2NO2NC | | | | |
| | Auxiliary ¹⁾ | AC/DC | 2NO2NC | | | | |
| Dimensions | AC/DC | W x H x D | mm 138 x 204 x 174.2 | | | | |
| Weight | AC/DC | kg | 4.8 | | | | |
| Contact Arrangement | | | | | | | |
| Main | Main | 3a | | | | | |
| | Auxiliary | 2a2b | | | | | |
| Main + Auxiliary (2a2b) | Main | 3a | | | | | |
| | Auxiliary | 4a4b | | | | | |

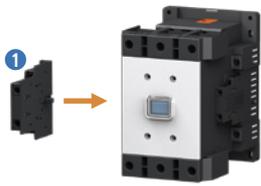
※ - Auxiliary Contacts Usage: Please refer to page 48 - 49.

¹⁾ Maximum number of side auxiliary contacts.

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Accessories

| Auxilliary Contacts | Other Accessories |
|---|--|
|  |  |
| <p>1 Auxilliary Contact Block (Side Mounting) HGC SB 800 - 48 page</p> | <p>2 Mechanical Interlock Block HGC IU 265 - 50 page</p> <p>3 Thermal Overload Relay HGT 265 - 40 page</p> |

Order Information

• Standard Order (w/protection cover, w/o accessories) / Auxiliary Contacts: 2NO2NC

| Voltage (V) | Voltage Band (V) | HGC185 | HGC225 | HGC265 |
|-------------|----------------------------|------------------|------------------|------------------|
| 24 | AC24 - 26 DC24 | HGC185 22NS F24 | HGC225 22NS F24 | HGC265 22NS F24 |
| 48 | AC44 - 52 DC48 | HGC185 22NS F48 | HGC225 22NS F48 | HGC265 22NS F48 |
| 220 | AC100 - 240 DC110 - 220 | HGC185 22NS F220 | HGC225 22NS F220 | HGC265 22NS F220 |
| 440 | AC380 - 450 | HGC185 22NS F440 | HGC225 22NS F440 | HGC265 22NS F440 |

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Rating and Selection

Magnetic Contactor: HGC 300 - 500 A

Rating



| Model | | | HGC300 | HGC400 | HGC500 | | |
|--|--|---------------------|--------------------|--------------|---------|---------|---------|
| IEC 60947-4 | Rated Insulation Voltage [U _i] | | V | 1,000 | 1,000 | 1,000 | |
| | Rated Operational Voltage [U _e] | | V | 1,000 | 1,000 | 1,000 | |
| | Rated Impulse Withstand Voltage [U _{imp}] | | kV | 8 | 8 | 8 | |
| | Rated Thermal Current [I _{th}] (AC1) | | A | 400 | 500 | 550 | |
| | AC3 | 200 - 240 V | | kW/A | 90/300 | 125/400 | 140/500 |
| | | 380 - 440 V | | | 160/300 | 220/400 | 250/500 |
| | | 500 - 550 V | | | 200/273 | 250/300 | 300/426 |
| | | 660 - 690 V | | | 200/220 | 250/300 | 335/360 |
| | | 1,000 V | | | 200/141 | 250/178 | 275/192 |
| | | Lifetime | Electrical | 10,000 | 100 | 100 | 50 |
| | Mechanical | | Times | 500 | 500 | 500 | |
| | AC4 | 200 - 240 V | | kW/A | 55/220 | 75/300 | 90/350 |
| | | 380 - 440 V | | | 110/220 | 150/300 | 175/350 |
| | | Electrical Lifetime | | 10,000 Times | 3 | 3 | 3 |
| AC1,2,3 Operating Frequency (per hour) | 100 % load | | Times | 300 | 300 | 300 | |
| | 50 % load (DC) | | | 600 | 600 | 600 | |
| | 20 % load (DC) | | | 1,200 | 1,200 | 1,200 | |
| AC4 Operatong Frequency (per hour) | 100 % load | | Times | 150 | 150 | 150 | |
| | 50 % load | | | 300 | 300 | 300 | |
| Making Capacity | 220 V | | A | 3,000 | 4,000 | 5,000 | |
| | 440 V | | | 3,000 | 4,000 | 5,000 | |
| Breaking Capacity | 220 V | | A | 2,400 | 3,200 | 4,000 | |
| | 440 V | | | 2,400 | 3,200 | 4,000 | |
| Mounting Method | | | Screw | | | | |
| Contacts | Main | AC/DC | 2NO2NC | | | | |
| | Auxiliary ¹⁾ | AC/DC | 2NO2NC | | | | |
| Dimensions | AC/DC | W x H x D | mm 163 x 243 x 203 | | | | |
| Weight | AC/DC | kg | 9.2 | | | | |
| Contact Arrangement | | | | | | | |
| Main | Main | 3a | | | | | |
| | Auxiliary | 2a2b | | | | | |
| Main + Auxilliary (2a2b) | Main | 3a | | | | | |
| | Auxiliary | 4a4b | | | | | |

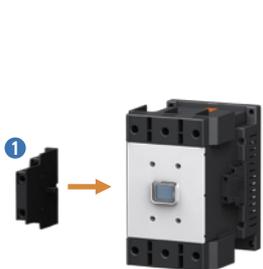
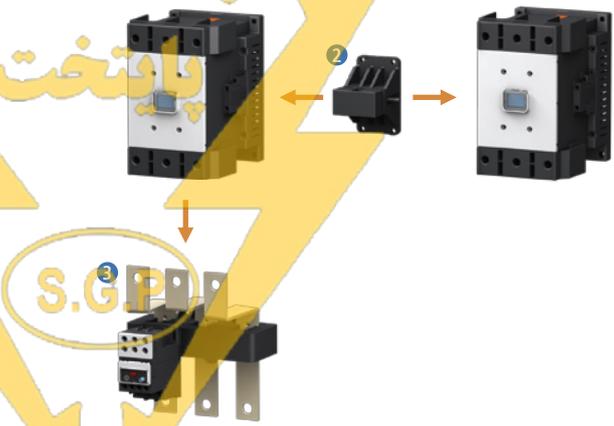
※ - Auxilliary Contacts Usage: Please refer to page 48 - 49

¹⁾ Maximum number of side auxilliary contacts.

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Accessories

| Auxilliary Contacts | Other Accessories |
|--|--|
|  <p>1 Auxilliary Contact Block (Side Mounting) HGC SB 800 - 48 page</p> |  <p>2 Mechanical Interlock Block HGC IU 800 - 50 page</p> <p>3 Thermal Overload Relay HGT 500 - 40 page</p> |

Order Information

تامین کننده ملزومات برق

• Standard Order (w/protection cover, w/o accessories) / Auxiliary Contacts: 2NO2NC

| Voltage (V) | Voltage Band (V) | HGC300 الکتریکال - مکانیکال براردقیق | HGC400 | HGC500 |
|-------------|----------------------------|--|------------------|------------------|
| 220 | AC100 - 240 DC110 - 220 | HGC300 22NS F220 | HGC400 22NS F220 | HGC500 22NS F220 |
| 440 | AC380 - 450 | HGC300 22NS F440 | HGC400 22NS F440 | HGC500 22NS F440 |

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Rating and Selection

Magnetic Contactor: HGC 630 - 800 A

Rating



| Model | HGC630 | | | HGC800 | | |
|----------------------------|--|------------|---------|---------|---------|-------------------|
| IEC 60947-4 | Rated Insulation Voltage [U _i] | V | 1,000 | 1,000 | 1,000 | 1,000 |
| | Rated Operational Voltage [U _e] | V | 1,000 | 1,000 | 1,000 | 1,000 |
| | Rated Impulse Withstand Voltage [U _{imp}] | kV | 8 | 8 | 8 | 8 |
| | Rated Thermal Current [I _{th}] (AC1) | A | 750 | 900 | 900 | 900 |
| AC3 | 200 - 240 V | kW/A | 190/630 | 220/800 | 220/800 | 220/800 |
| | 380 - 440 V | | 330/630 | 440/800 | 440/800 | 440/800 |
| | 500 - 550 V | | 330/500 | 500/720 | 500/720 | 500/720 |
| | 660 - 690 V | | 400/412 | 500/630 | 500/630 | 500/630 |
| | 1,000 V | | 300/213 | 400/284 | 400/284 | 400/284 |
| | Lifetime | Electrical | 10,000 | 50 | 50 | 50 |
| | Mechanical | Times | 500 | 500 | 500 | |
| AC4 | 200 - 240 V | kW/A | 110/400 | 160/630 | 160/630 | 160/630 |
| | 380 - 440 V | | 200/400 | 300/630 | 300/630 | 300/630 |
| | Electrical Lifetime | 10,000 | 3 | 3 | 3 | |
| AC1,2,3 | 100 % load | Times | 300 | 300 | 300 | 300 |
| | 50 % load (DC) | | 600 | 600 | 600 | 600 |
| | 20 % load (DC) | | 1,200 | 1,200 | 1,200 | 1,200 |
| AC4 Operationg | 100 % load | Times | 150 | 150 | 150 | 150 |
| | 50 % load | | 300 | 300 | 300 | 300 |
| Making Capacity | 220 V | A | 6,300 | 8,000 | 8,000 | 8,000 |
| | 440 V | | 6,300 | 8,000 | 8,000 | 8,000 |
| Breaking Capacity | 220 V | A | 5,040 | 6,400 | 6,400 | 6,400 |
| | 440 V | | 5,040 | 6,400 | 6,400 | 6,400 |
| Mounting Method | | | | Screw | | |
| Contacts | Main | AC/DC | 2NO2NC | | | |
| | Auxiliary ¹⁾ | AC/DC | 2NO2NC | | | |
| Dimensions | AC/DC | W x H x D | mm | | | 276 x 314 x 255,3 |
| Weight | AC/DC | | kg | | | 25 |
| Contact Arrangement | | | | | | |
| Main | Main | 3a | | | | |
| | Auxiliary | 2a2b | | | | |
| Main + Auxilliary (2a2b) | Main | 3a | | | | |
| | Auxiliary | 4a4b | | | | |

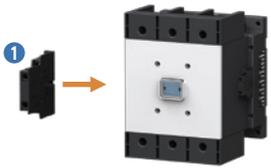
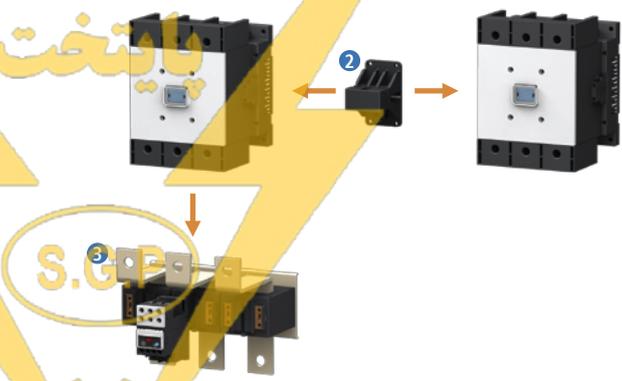
※ - Auxilliary Contacts Usage: Please refer to page 48 - 49

¹⁾ Maximum number of side auxilliary contacts.

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Accessories

| Auxilliary Contacts | Other Accessories |
|---|--|
|  |  |
| <p>① Auxilliary Contact Block (Side Mounting) HGC SB 800 - 48 page</p> | <p>② Mechanical Interlock Block HGC IU 800 - 50 page</p> <p>③ Thermal Overload Relay HGT 800 - 40 page</p> |

سازه گستر پایتخت

Order Information

تامین کننده ملزومات برق

• Standard Order (w/protection cover, w/o accessories) / Auxiliary Contacts: 2NO2NC

| Voltage (V) | Voltage Band (V) | الکتریکال - مکانیکال - ابزار دقیق - HGC630 | HGC800 |
|-------------|----------------------------|--|------------------|
| 110 | AC100 - 127 DC100 - 110 | HGC630 22NS F110 | HGC800 22NS F110 |
| 220 | AC200 - 240 DC200 - 220 | HGC630 22NS F220 ۰۲۱-۶۶۱۷۲۰۳۲ | HGC800 22NS F220 |
| 440 | AC380 - 450 | HGC630 22NS F440 | HGC800 22NS F440 |

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Rating and Selection

Thermal Overload Relay (TOR)

| Exterior and Model | | Rating | | | | | | | |
|---|-------|-----------------|-----------------|------|--|-------------------|-------------------|----------------------|------------------------|
| Exterior | Model | Current (A) | | | Applicable Cable Size (mm ²) | | Auxiliary Contact | Applicable Contactor | |
| | | Nominal Current | Setting Current | | Main Circuit | Auxiliary Circuit | | | |
| | | | Min. | Mid. | | | | | Max. |
|  (W x H x D) 45 × 82.7 × 78.2 mm 0.12 kg | HGT18 | 0.18 | 0.12 | 0.15 | 0.18 | 1 - 25 | 1 - 25 | 1NO1NC | HGC9 HGC12 HGC18 |
| | | 0.26 | 0.18 | 0.22 | 0.26 | | | | |
| | | 0.35 | 0.25 | 0.3 | 0.35 | | | | |
| | | 0.5 | 0.34 | 0.42 | 0.5 | | | | |
| | | 0.7 | 0.5 | 0.6 | 0.7 | | | | |
| | | 0.9 | 0.6 | 0.75 | 0.9 | | | | |
| | | 1.2 | 0.8 | 1 | 1.2 | | | | |
| | | 1.6 | 1.1 | 1.35 | 1.6 | | | | |
| | | 2.1 | 1.5 | 1.8 | 2.1 | | | | |
| | | 3 | 2 | 2.5 | 3 | | | | |
| | | 4.2 | 2.8 | 3.5 | 4.2 | | | | |
| | | 5 | 3 | 4 | 5 | | | | |
| | | 6 | 4 | 5 | 6 | | | | |
| | | 8 | 5.6 | 6.8 | 8 | | | | |
| | | 9 | 6 | 7.5 | 9 | | | | |
| 12 | 8 | 10 | 12 | | | | | | |
| 18 | 12 | 15 | 18 | | | | | | |

سازه گستر پایتخت

تامین کننده ملزومات برق

الکتریکال - مکانیکال - ابزار دقیق

۰۲۱-۶۶۱۷۲۰۳۲

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| Code | | Notes |
|---|---------------------------------|--|
| Thermal Overload Relay (Protection Class 10 A) | | Installation Method Method 1. Connect TOR to MC directly. Method 2. TOR is installed individually using Mounting Adaptor. |
| Screw Type Terminal (W/Terminal Cover) | | |
| K-Type (3 phase, 3 elements) | H-Type (3 phase, 2 elements) | Accessories Mounting Adapter |
| HGT18K A0P18S | HGT18H A0P18S |    <p>Mounting Adapter HGTMB18 0.08 kg</p> <p>Connect to Contactor Directly</p> <p>Mounting Adapter (Screw & DIN-Rail)</p>  |
| HGT18K A0P26S | HGT18H A0P26S | |
| HGT18K A0P35S | HGT18H A0P35S | |
| HGT18K A0P50S | HGT18H A0P50S | |
| HGT18K A0P70S | HGT18H A0P70S | |
| HGT18K A0P90S | HGT18H A0P90S | |
| HGT18K A1P20S | HGT18H A1P20S | |
| HGT18K A1P60S | HGT18H A1P60S | |
| HGT18K A2P10S | HGT18H A2P10S | |
| HGT18K A0003S | HGT18H A0003S | |
| HGT18K A4P20S | HGT18H A4P20S | |
| HGT18K A0005S | HGT18H A0005S | |
| HGT18K A0006S | HGT18H A0006S | |
| HGT18K A0008S | HGT18H A0008S | |
| HGT18K A0009S | HGT18H A0009S | |
| HGT18K A0012S | HGT18H A0012S | |
| HGT18K A0018S | HGT18H A0018S | |

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Rating and Selection

Thermal Overload Relay (TOR)

| Exterior and Model | | Rating | | | | | | | |
|---|--------|-----------------|-----------------|------|--|-------------------|-------------------|----------------------|--------------------------|
| Exterior | Model | Current (A) | | | Applicable Cable Size (mm ²) | | Auxiliary Contact | Applicable Contactor | |
| | | Nominal Current | Setting Current | | Main Circuit | Auxiliary Circuit | | | |
| | | | Min. | Mid. | | | | | Max. |
|  (W x H x D) 45 × 95.5 × 69.4 mm 0.16kg | HGT40 | 10 | 7 | 8.5 | 10 | 2 - 10 | 1 - 2.5 | 1NO1NC | HGC25 HGC32 HGC40 |
| | | 12 | 8 | 10 | 12 | | | | |
| | | 18 | 12 | 15 | 18 | | | | |
| | | 22 | 15 | 18.5 | 22 | | | | |
| | | 25 | 17 | 21 | 25 | | | | |
| | | 32 | 22 | 27 | 32 | | | | |
| | | 40 | 28 | 34 | 40 | | | | |
|  (W x H x D) 55 × 110.7 × 89.3 mm 0.29 kg | HGT65 | 10 | 7 | 8.5 | 10 | 2 - 25 | 1 - 2.5 | 1NO1NC | HGC50 HGC65 |
| | | 12 | 8 | 10 | 12 | | | | |
| | | 18 | 12 | 15 | 18 | | | | |
| | | 22 | 15 | 18.5 | 22 | | | | |
| | | 25 | 17 | 21 | 25 | | | | |
| | | 32 | 22 | 27 | 32 | | | | |
| | | 40 | 28 | 34 | 40 | | | | |
|  (W x H x D) 70 × 128.1 × 105 mm 0.47 kg | HGT100 | 25 | 17 | 21 | 25 | 6 - 38 | 1 - 2.5 | 1NO1NC | HGC75 HGC85 HGC100 |
| | | 32 | 22 | 27 | 32 | | | | |
| | | 40 | 28 | 34 | 40 | | | | |
| | | 50 | 34 | 42 | 50 | | | | |
| | | 65 | 45 | 55 | 65 | | | | |
| | | 75 | 52 | 63 | 75 | | | | |
| | | 85 | 59 | 72 | 85 | | | | |
| 100 | 70 | 85 | 100 | | | | | | |

| Code | | | Notes |
|---|---------------------------------|---------------------------------|--|
| Thermal Overload Relay (Characteristics Class 10A) | | | Installation Method |
| Screw Type Terminal (W/Terminal Cover) | | Lug Type Terminal | Method 1. Connect TOR with MC directly. Method 2. TOR is installed individually using Mounting Adapter. |
| K-Type (3 phase, 3 elements) | H-Type (3 phase, 2 elements) | K-Type (3 phase, 3 elements) | |
| HGT40K A0010S | HGT40H A0010S | |  <p>Mounting Adapter HGTMB40 (0.10 kg) HGTMB65 (0.12 kg) HGTMB100 (0.2 kg)</p> <p>Connect to Contactor Directly</p> <p>Mounting Adapter (Screw & DIN-Rail)</p> |
| HGT40K A0012S | HGT40H A0012S | | |
| HGT40K A0018S | HGT40H A0018S | | |
| HGT40K A0022S | HGT40H A0022S | | |
| HGT40K A0025S | HGT40H A0025S | | |
| HGT40K A0032S | HGT40H A0032S | | |
| HGT40K A0040S | HGT40H A0040S | | |
| HGT65K A0010S | HGT65H A0010S | HGT65K A0010C |  <p>Mounting Adapter HGTMB65</p> |
| HGT65K A0012S | HGT65H A0012S | HGT65K A0012C | |
| HGT65K A0018S | HGT65H A0018S | HGT65K A0018C | |
| HGT65K A0022S | HGT65H A0022S | HGT65K A0022C | |
| HGT65K A0025S | HGT65H A0025S | HGT65K A0025C | |
| HGT65K A0032S | HGT65H A0032S | HGT65K A0032C | |
| HGT65K A0040S | HGT65H A0040S | HGT65K A0040C | |
| HGT65K A0050S | HGT65H A0050S | HGT65K A0050C | |
| HGT65K A0065S | HGT65H A0065S | HGT65K A0065C | |
| HGT100K A0025S | HGT100H A0025S | HGT100K A0025C | |
| HGT100K A0032S | HGT100H A0032S | HGT100K A0032C | |
| HGT100K A0040S | HGT100H A0040S | HGT100K A0040C | |
| HGT100K A0050S | HGT100H A0050S | HGT100K A0050C | |
| HGT100K A0065S | HGT100H A0065S | HGT100K A0065C | |
| HGT100K A0075S | HGT100H A0075S | HGT100K A0075C | |
| HGT100K A0085S | HGT100H A0085S | HGT100K A0085C | |
| HGT100K A00100S | HGT100H A00100S | HGT100K A00100C | |

Rating and Selection

Thermal Overload Relay (TOR)

| Exterior and Model | | Rating | | | | | | Auxiliary Contact | Applicable Contactor |
|--|--------|-----------------|-----------------|------|------|-------------------------------------|--------------------|-------------------|----------------------------|
| Exterior | Model | Current (A) | | | | Applicable Cable (mm ²) | Auxilliary Circuit | | |
| | | Nominal Current | Setting Current | | | | | | |
| | | | Min. | Mid. | Max. | CT Ratio | | | |
|  (W x H x D) 180 x 179.3x159 mm 2.0 kg | HGT150 | 80 | 48 | 64 | 80 | 80 : 5 | 1 - 2.5 | 1NO1NC | HGC115 HGC130 HGC150 |
| | | 115 | 69 | 92 | 115 | 115 : 5 | | | |
| | | 130 | 78 | 104 | 130 | 130 : 5 | | | |
| | | 150 | 90 | 120 | 150 | 150 : 5 | | | |
|  (W x H x D) 180 x 179.3 x 185mm 2.2 kg | HGT265 | 80 | 48 | 64 | 80 | 80 : 5 | 1 - 2.5 | 1NO1NC | HGC185 HGC225 HGC265 |
| | | 115 | 69 | 92 | 115 | 115 : 5 | | | |
| | | 130 | 78 | 104 | 130 | 130 : 5 | | | |
| | | 150 | 90 | 120 | 150 | 150 : 5 | | | |
| | | 185 | 111 | 148 | 185 | 185 : 5 | | | |
| | | 225 | 135 | 180 | 225 | 225 : 5 | | | |
|  (W x H x D) 180 x 179.3 x 205.2 mm 2.4 kg | HGT500 | 150 | 90 | 120 | 150 | 150 : 5 | 1 - 2.5 | 1NO1NC | HGC300 HGC400 HGC500 |
| | | 185 | 111 | 148 | 185 | 185 : 5 | | | |
| | | 225 | 135 | 180 | 225 | 225 : 5 | | | |
| | | 265 | 159 | 212 | 265 | 265 : 5 | | | |
| | | 300 | 180 | 240 | 300 | 300 : 5 | | | |
| | | 400 | 240 | 320 | 400 | 400 : 5 | | | |
|  (W x H x D) 245 x 209.9 x 197 mm 6.2 kg | HGT800 | 630 | 378 | 504 | 630 | 630 : 5 | 1 - 2.5 | 1NO1NC | HGC630 HGC800 |
| | | 800 | 480 | 640 | 800 | 800 : 5 | | | |

| Code | | Notes | |
|--|---------------------------------|---|---|
| Thermal Overload Relay (Characteristics Class 10 A) | | Installation Method | |
| Screw Type Terminal (W/Terminal Cover) | | Method 1. Connect CT with MC directly. | |
| K-Type (3 phase, 3 elements) | H-Type (3 phase, 2 elements) | | |
| HGT150K A0080S | HGT150H A0080S |  <p>HGT150</p> | |
| HGT150K A0115S | HGT150H A0115S | | |
| HGT150K A0130S | HGT150H A0130S | | |
| HGT150K A0150S | HGT150H A0150S | | |
| HGT265K A0080S | HGT265H A0080S | |  <p>HGT265</p> |
| HGT265K A0115S | HGT265H A0115S | | |
| HGT265K A0130S | HGT265H A0130S | | |
| HGT265K A0150S | HGT265H A0150S | | |
| HGT265K A0185S | HGT265H A0185S | | |
| HGT265K A0225S | HGT265H A0225S | | |
| HGT265K A0265S | HGT265H A0265S |  <p>HGT400</p> | |
| HGT400K A0150S | HGT400H A0150S | | |
| HGT400K A0185S | HGT400H A0185S | | |
| HGT400K A0225S | HGT400H A0225S | | |
| HGT400K A0265S | HGT400H A0265S | | |
| HGT400K A0300S | HGT400H A0300S | | |
| HGT400K A0400S | HGT400H A0400S | | |
| HGT500K A0500S | HGT500H A0500S | |  <p>HGT500</p> |
| HGT800K A0630S | HGT800H A0630S | | |
| HGT800K A0800S | HGT800H A0800S | | |
| HGT800K A0800S | HGT800H A0800S | | |

سازه گستر

پایتخت

S.G.P

سازه گستر پایتخت

تامین کننده ملزومات برق

الکتریکال - مکانیکال - ابزار دقیق

۰۲۱-۶۶۱۷۲۰۳۲

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Ratings and Ordering Code

Control Relay (HGR)

Rating



HGR-X (AC)



HGR-T (DC)



HGR-P (DC)

| Model | | HGR-X (AC) | | HGR-T (DC) | | HGR-P (DC) Permanent Magnetic | |
|---|--------------------------|-----------------|-----|------------------|--|----------------------------------|--|
| Rated Insulation | | IEC 60947 | | V | | AC750 | |
| Voltage [U _i] | | VDE0660 | | V | | AC1,000 | |
| Rated Thermal Current [I _{th}] (AC1) | | A | | A | | 16 | |
| Rated Current [I _e] | AC15 | 220 V | A | 4 | | | |
| | | 380 V | | 3 | | | |
| | | 440 V | | 3 | | | |
| | | 500 V | | 2 | | | |
| | | 690 V | | 2 | | | |
| | DC12 (Resistive Load) | 24 V | | 4 | | | |
| | | 48 V | | 2.5 | | | |
| | | 125 V | | 1.1 | | | |
| | DC13 (Coil Load) | 24 V | | 4 | | | |
| | | 48 V | | 2.5 | | | |
| | | 125 V | | 1.1 | | | |
| | UL/CSA ¹⁾ | AC120 V | | 6 | | | |
| AC240 V | | | 3 | | | | |
| DC125 V | | | 1.1 | | | | |
| DC250 V | | | 0.3 | | | | |
| Mechanical Lifetime | | X 10,000 | | 1,500 | | 1,000 | |
| Cable Size | | mm ² | | 2 x 0.75-2.5 | | | |
| Operating Frequency (per hour) | | Times | | 3,000 | | 1,800 | |
| Maximum Fuse Rating | Plug-fuse (Fast/Slow) | | A | 35/25 | | | |
| | MCB (C curve) | | | 16 | | | |
| | HRC fuse (DIN/BS88) | | | 25 | | | |
| Mounting Method | | | | Screw & DIN-Rail | | | |
| Auxiliary Contacts | | | | 4NC | | | |
| | | | | 1NO + 3NC | | | |
| | | | | 2NO + 2NC | | | |
| | | | | 3NO + 1NC | | | |
| | | | | 4NO | | | |
| Coil Power Consumption | A/C (60Hz) | Inrush | VAW | 80/64 | | - | |
| | | Hold | | 8/2.5 | | - | |
| | D/C | Inrush/Hold | W | 7 | | 5 | |
| Dimensions | A/C | W x H x D | mm | 44 x 75 x 80 | | - | |
| | D/C | | | 44 x 75 x 112 | | 44 x 75 x 93.8 | |
| W | A/C | | | 0.3 | | - | |
| | D/C | | | 0.55 | | 0.45 | |

※ 1) Contact Rating Code: A300 - P150

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Operation Features

| Model | | HGR (AC220 V, 60 Hz) | | | | HGR (DC110 V) | | | | HGR-P | | | |
|-----------------------|-------------------------|----------------------|-----------|-----------|-----------|---------------|---------|---------|---------|---------|---------|---------|---------|
| | | 22 | 40 | 44 | 80 | 22 | 40 | 44 | 80 | 22 | 40 | 44 | 80 |
| Operation Voltage | Making | 115 - 130 | 130 - 145 | 115 - 130 | 135 - 148 | 50 - 65 | 53 - 68 | 50 - 65 | 50 - 65 | 65 - 70 | 70 - 75 | 65 - 70 | 75 - 80 |
| | Breaking | 70 - 85 | 70 - 85 | 75 - 90 | 75 - 95 | 12 - 23 | 12 - 20 | 13 - 25 | 13 - 25 | 12 - 15 | 15 - 18 | 12 - 15 | 15 - 20 |
| Operation Time (msec) | Coil On→No Contact On | 15 - 25 | 13 - 23 | 13 - 23 | 13 - 23 | 40 - 50 | 38 - 48 | 35 - 45 | 35 - 45 | 45 - 55 | 65 - 75 | 50 - 60 | 65 - 75 |
| | Coil On→NC Contact Off | 5 - 15 | | 5 - 15 | | 28 - 38 | | 25 - 35 | | 40 - 50 | | 40 - 50 | |
| | Coil Off→NO Contact Off | 7 - 17 | 7 - 17 | 7 - 17 | 7 - 17 | 10 - 15 | 10 - 20 | 8 - 18 | 10 - 20 | 20 - 30 | 10 - 20 | 20 - 30 | 10 - 20 |
| | Coil Off→NC Contact On | 15 - 25 | | 13 - 23 | | 16 - 28 | | 15 - 25 | | 25 - 35 | | 25 - 35 | |

Order Information

| Operation Voltage (V) | Contacts Combination | | | | | |
|-----------------------|----------------------|---------------|---------------|---------------|---------------|---------------|
| | 4NC | 1NO + 3NC | 2NO + 2NC | 3NO + 1NC | 4NO | |
| AC60 Hz | 24 | HGR 04XS A24 | HGR 13XS A24 | HGR 22XS A24 | HGR 31XS A24 | HGR 40XS A24 |
| | 48 | HGR 04XS A48 | HGR 13XS A48 | HGR 22XS A48 | HGR 31XS A48 | HGR 40XS A48 |
| | 110 | HGR 04XS A110 | HGR 13XS A110 | HGR 22XS A110 | HGR 31XS A110 | HGR 40XS A110 |
| | 120 | HGR 04XS A120 | HGR 13XS A120 | HGR 22XS A120 | HGR 31XS A120 | HGR 40XS A120 |
| | 208 | HGR 04XS A208 | HGR 13XS A208 | HGR 22XS A208 | HGR 31XS A208 | HGR 40XS A208 |
| | 220 | HGR 04XS A220 | HGR 13XS A220 | HGR 22XS A220 | HGR 31XS A220 | HGR 40XS A220 |
| | 240 | HGR 04XS A240 | HGR 13XS A240 | HGR 22XS A240 | HGR 31XS A240 | HGR 40XS A240 |
| | 380 | HGR 04XS A380 | HGR 13XS A380 | HGR 22XS A380 | HGR 31XS A380 | HGR 40XS A380 |
| | 440 | HGR 04XS A440 | HGR 13XS A440 | HGR 22XS A440 | HGR 31XS A440 | HGR 40XS A440 |
| | 480 | HGR 04XS A480 | HGR 13XS A480 | HGR 22XS A480 | HGR 31XS A480 | HGR 40XS A480 |
| 600 | HGR 04XS A600 | HGR 13XS A600 | HGR 22XS A600 | HGR 31XS A600 | HGR 40XS A600 | |
| AC50 Hz | 24 | HGR 04XS X24 | HGR 13XS X24 | HGR 22XS X24 | HGR 31XS X24 | HGR 40XS X24 |
| | 42 | HGR 04XS X42 | HGR 13XS X42 | HGR 22XS X42 | HGR 31XS X42 | HGR 40XS X42 |
| | 48 | HGR 04XS X48 | HGR 13XS X48 | HGR 22XS X48 | HGR 31XS X48 | HGR 40XS X48 |
| | 100 | HGR 04XS X100 | HGR 13XS X100 | HGR 22XS X100 | HGR 31XS X100 | HGR 40XS X100 |
| | 110 | HGR 04XS X110 | HGR 13XS X110 | HGR 22XS X110 | HGR 31XS X110 | HGR 40XS X110 |
| | 220 | HGR 04XS X220 | HGR 13XS X220 | HGR 22XS X220 | HGR 31XS X220 | HGR 40XS X220 |
| | 240 | HGR 04XS X240 | HGR 13XS X240 | HGR 22XS X240 | HGR 31XS X240 | HGR 40XS X240 |
| | 380 | HGR 04XS X380 | HGR 13XS X380 | HGR 22XS X380 | HGR 31XS X380 | HGR 40XS X380 |
| | 400 | HGR 04XS X400 | HGR 13XS X400 | HGR 22XS X400 | HGR 31XS X400 | HGR 40XS X400 |
| | 440 | HGR 04XS X440 | HGR 13XS X440 | HGR 22XS X440 | HGR 31XS X440 | HGR 40XS X440 |
| 500 | HGR 04XS X500 | HGR 13XS X500 | HGR 22XS X500 | HGR 31XS X500 | HGR 40XS X500 | |
| 550 | HGR 04XS X550 | HGR 13XS X550 | HGR 22XS X550 | HGR 31XS X550 | HGR 40XS X550 | |
| DC Regular | 24 | HGR 04TS D24 | HGR 13TS D24 | HGR 22TS D24 | HGR 31TS D24 | HGR 40TS D24 |
| | 48 | HGR 04TS D48 | HGR 13TS D48 | HGR 22TS D48 | HGR 31TS D48 | HGR 40TS D48 |
| | 100 | HGR 04TS D100 | HGR 13TS D100 | HGR 22TS D100 | HGR 31TS D100 | HGR 40TS D100 |
| | 125 | HGR 04TS D125 | HGR 13TS D125 | HGR 22TS D125 | HGR 31TS D125 | HGR 40TS D125 |
| | 200 | HGR 04TS D200 | HGR 13TS D200 | HGR 22TS D200 | HGR 31TS D200 | HGR 40TS D200 |
| | 220 | HGR 04TS D220 | HGR 13TS D220 | HGR 22TS D220 | HGR 31TS D220 | HGR 40TS D220 |
| DC Permanent Magnetic | 24 | HGR 04PS D24 | HGR 13PS D24 | HGR 22PS D24 | HGR 31PS D24 | HGR 40PS D24 |
| | 48 | HGR 04PS D48 | HGR 13PS D48 | HGR 22PS D48 | HGR 31PS D48 | HGR 40PS D48 |
| | 100 | HGR 04PS D100 | HGR 13PS D100 | HGR 22PS D100 | HGR 31PS D100 | HGR 40PS D100 |
| | 125 | HGR 04PS D125 | HGR 13PS D125 | HGR 22PS D125 | HGR 31PS D125 | HGR 40PS D125 |
| | 200 | HGR 04PS D200 | HGR 13PS D200 | HGR 22PS D200 | HGR 31PS D200 | HGR 40PS D200 |
| 220 | HGR 04PS D220 | HGR 13PS D220 | HGR 22PS D220 | HGR 31PS D220 | HGR 40PS D220 | |
| Contact Arrangement | | | | | | |

Accessories

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- HGR has DC and AC types, and 5 types of possible contact configurations.
- HGR follows IEC 60947 and protection degree is IP20.
- Usable temperature range is -25 - 40 °C.
- HGR which has fast response time is appropriate for application of control circuit and factory automation.
- Applicable standard
IEC 60947-5-1, VDE0660, CENELEC-EN50011

Auxiliary Contact Block (Front Mounting)

Mechanical Latching Block

Electronic Timer

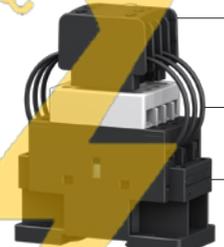


※ Maximum combination of front mounting auxiliary contact (HGC-TB) is 4NC. when more than 4NC is applied, it might cause misoperation.

Ratings and Ordering Code

Capacitor Switching Contactor

| Products | | Rating | | | | | | Components | |
|--|--------|---|-----------|-----------|-------|-----------|--------|------------|--------------------|
| Exterior | Model | Capacitor Capacity, kVAR (Appropriate Ambient Temperature 55 °C, 50 Hz/60 Hz) | | | | | | Contactors | |
| | | 220 V | 230/240 V | 400/415 V | 440 V | 500/550 V | 690 V | Model | Auxiliary Contacts |
|  | HGC9C | 5 | 5 | 9.7 | 9.7 | 14 | 14 | HGC9 | 2NO + 2NC |
| | HGC12C | 6.7 | 6.7 | 12.5 | 12.5 | 18 | 18 | HGC12 | 2NO + 2NC |
| | HGC18C | 8.5 | 8.5 | 16.7 | 16.7 | 24 | 24 | HGC18 | 2NO + 2NC |
| | HGC25C | 10 | 10 | 18 | 18 | 26 | 26 | HGC25 | 2NO + 2NC |
| | HGC32C | 14 | 16 | 27.5 | 30 | 34 | 45 | HGC32 | 2NO + 2NC |
| | HGC40C | 20 | 20 | 30 | 33.3 | 48 | 48 | HGC40 | 2NO + 2NC |
| | HGC50C | 21 | 24 | 40 | 45 | 50 | 65 | HGC50 | 2NO + 2NC |
| | HGC65C | 25 | 25 | 46 | 46 | 66 | 66 | HGC65 | 2NO + 2NC |
| | HGC75C | 30 | 30 | 54 | 54 | 78 | 78 | HGC75 | 2NO + 2NC |
| | HGC85C | 35 | 35 | 60 | 60 | 92 | 92 | HGC85 | 2NO + 2NC |
| HGC100C | 50 | 50 | 80 | 80 | 100 | 100 | HGC100 | 2NO + 2NC | |

| Components | | Order Information | | Notes |
|----------------|---------------------|-------------------|-------------------|--|
| Capacitor Unit | | AC ¹⁾ | | Capacitor Switching Contactor |
| Model | Auxilliary Contacts | 220 V, 60 Hz | 220 V, 50 Hz | |
| HGC CU40 | 1NO | HGC9C 32NS A220 | HGC9C 32NS X220 |  <ul style="list-style-type: none"> Capacitor switching contactor is combined with magnetic contactor Contactor is assembled with damping resistors which limit the high in-rush current when the capacitors are switched on. They are assembled with early-make contact block, which is switched on before the main contacts, thus, limiting the in-rush current. Capacitor switching unit is composed of 3 NO main contacts and 1 auxilliary contact (1NO or 1NC). When power is supplied, capacitor creates oscillation frequency (1~15KHZ) and generates transient current (over 180 In). Capacitor switching unit limits the transient current, thus, protects main contacts. When power is supplied to magnetic contactor, the value of maximum current is reduced as following cases. <ul style="list-style-type: none"> - Inductance of main power supply is too high. - Rating of line transformer is too low. - Short circuit of transformer is too high. |
| | 1NC | HGC9C 23NS A220 | HGC9C 23NS X220 | |
| HGC CU40 | 1NO | HGC12C 32NS A220 | HGC12C 32NS X220 | |
| | 1NC | HGC12C 23NS A220 | HGC12C 23NS X220 | |
| HGC CU40 | 1NO | HGC18C 32NS A220 | HGC18C 32NS X220 | |
| | 1NC | HGC18C 23NS A220 | HGC18C 23NS X220 | |
| HGC CU40 | 1NO | HGC25C 32NS A220 | HGC25C 32NS X220 | |
| | 1NC | HGC25C 23NS A220 | HGC25C 23NS X220 | |
| HGC CU40 | 1NO | HGC32C 32NS A220 | HGC32C 32NS X220 | |
| | 1NC | HGC32C 23NS A220 | HGC32C 23NS X220 | |
| HGC CU40 | 1NO | HGC40C 32NS A220 | HGC40C 32NS X220 | |
| | 1NC | HGC40C 23NS A220 | HGC40C 23NS X220 | |
| HGC CU100 | 1NO | HGC50C 32NS A220 | HGC50C 32NS X220 | |
| | 1NC | HGC50C 23NS A220 | HGC50C 23NS X220 | |
| HGC CU100 | 1NO | HGC65C 32NS A220 | HGC65C 32NS X220 | |
| | 1NC | HGC65C 23NS A220 | HGC65C 23NS X220 | |
| HGC CU100 | 1NO | HGC75C 32NS A220 | HGC75C 32NS X220 | |
| | 1NC | HGC75C 23NS A220 | HGC75C 23NS X220 | |
| HGC CU100 | 1NO | HGC85C 32NS A220 | HGC85C 32NS X220 | |
| | 1NC | HGC85C 23NS A220 | HGC85C 23NS X220 | |
| HGC CU100 | 1NO | HGC100C 32NS A220 | HGC100C 32NS X220 | |
| | 1NC | HGC100C 23NS A220 | HGC100C 23NS X220 | |

| Making & Breaking Frequency and Lifetime | | |
|--|------------------------|--------------|
| Making & Breaking Frequency | | 240 Cycles/h |
| Electrical Lifetime (AC-6b) | Ue ≤ 440 Vac | 250,000 |
| | 500 Vac ≤ Ue ≤ 690 Vac | 100,000 |

| Order Information (Only Capacitor Unit) | | | |
|---|-------------------|-------------------|-------------------------|
| Model | Auxiliary Contact | Order Information | Notes |
| HGCCU40/100 | 1NO | HGCCU40/100 10N | Damping resistors: 6 EA |
| | 1NC | HGCCU40/100 01N | |

※ 1) Operation Voltage
- 50 Hz: 24, 48, 110, 120, 220, 240, 380, 440 V - 60 Hz: 24, 48, 110, 120, 220, 240, 380, 440 V

Accessories



9 - 100 AF

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- | | | |
|---|---|--|
| <p>1 Auxiliary Contact Block (Front Side) HGC TB 48 page</p> | <p>4 Timer HGC ET 53 page</p> | <p>7 Thermal Overload Relay HGT 36 page</p> |
| <p>2 Auxiliary Contact Block (Left/Right Side) HGC SB 48 page</p> | <p>5 Interlock Unit HGC IU 50 page</p> | <p>8 Separate Mounting Base HGTM B 37, 39 page</p> |
| <p>3 Mechanical Latching Block HGC LB 100 51 page</p> | <p>6 Surge Absorber HGC RC/CD 52 page</p> | |

115 - 800 AF



سازه گستر پایتخت

تامین کننده ملزومات برق

الکتریکال - مکانیکال - ابزار دقیق

۰۲۱-۶۶۱۷۲۰۳۲

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115 - 800 AF

① Auxiliary Contact Block HGC SB
48 page

② Interlock Unit HGC IU
50 page

③ Thermal Overload Relay HGT
40 page

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Accessories

Auxilliary Contact Block

| Products | | Rating | | | | | | |
|---|---------|---|---------|-------------------|-----------------|------------------------------------|--------|--|
| Exterior | Model | Contacts Rating | | | | | | |
| <p>Front</p>  | HG C TB | Rated Insulation Voltage (Ui) | IEC | AC690 V | | | | |
| | | | UL | AC600 V | | | | |
| | | Rated Thermal Current (Ith) | 16 A | | | | | |
| | | | 120 V | 6 A | | | | |
| | | Operation Current AC15 (Coil Load) | 240 V | 4 A | | | | |
| | | | 380 V | 3 A | | | | |
| | | | 440 V | 3 A | | | | |
| | | | 500 V | 2 A | | | | |
| | | | 690 V | 2 A | | | | |
| | | Operation Current DC13 (Coil Load) | 24 V | 4 A | | | | |
| | | | 48 V | 2.5 A | | | | |
| | | | 125 V | 1.1 A | | | | |
| | | | 250 V | 0.3 A | | | | |
| | | | 480 V | 0.2 A | | | | |
| | | | 600 V | 0.2 A | | | | |
| <p>Side</p>  | HG C SB | Based on IEC 60947-4 | | Based on UL & CSA | | | | |
| | | Rated Insulation Voltage (Ui) | AC750 V | | Thermal Current | | | |
| | | Rated Thermal Current (Ith) | 16 A | | 120 V | 6 A | | |
| | | Operation Current AC12 (Resistive Load) | 110 V | 10 A | | Operation Current (AC) | | |
| | | | 220 V | 8 A | | 240 V | 3 A | |
| | | | 440 V | 6 A | | 480 V | 1.5 A | |
| | | Operation Current AC15 (Coil Load) | 690 V | 2 A | | 600 V | 1.2 A | |
| | | | 110 V | 6 A | | 125 V | 1.1 A | |
| | | | 220 V | 4 A | | 250 V | 0.55 A | |
| | | Operation Current DC12 (Resistive Load) | 440 V | 3 A | | 440 V | 0.2 A | |
| | | | 690 V | 2 A | | 600 V | 0.2 A | |
| | | | 24 V | 4 A | | ※ Contact Rating Code: A600 - P300 | | |
| | | Operation Current DC13 (Coil Load) | 48 V | 2.5 A | | | | |
| | | | 125 V | 1.1 A | | | | |
| | | | 250 V | 0.3 A | | | | |
| Operation Current DC13 (Coil Load) | 24 V | 4 A | | | | | | |
| | 48 V | 2.5 A | | | | | | |
| | 125 V | 1.1 A | | | | | | |
| Operation Current DC13 (Coil Load) | 250 V | 0.3 A | | | | | | |
| | 250 V | 0.3 A | | | | | | |

| Contacts Combination | | Order Information | | Notes | |
|----------------------|---|-------------------|--------|--|---|
| Combination | Arrangement | W/Terminal Cover | Weight | Applicable Contactors | Install Method |
| 2NC | <pre> 51 61 o o b b 52 62 </pre> | HGC TB02NS | 0.031 | HGC9 - 100 HGR | <p>Front Auxiliary Contacts</p>  |
| 1NO + 1NC | <pre> 51 63 o o b b 52 64 </pre> | HGC TB11NS | | | |
| 2NO | <pre> 53 63 o o o o 54 64 </pre> | HGC TB20NS | 0.053 | <p>Side Auxiliary Contacts</p>  | |
| 4NC | <pre> 51 61 71 81 o o o o b b b b 52 62 72 82 </pre> | HGC TB04NS | | | |
| 1NO + 3NC | <pre> 51 63 71 81 o o o o b b b b 52 64 72 82 </pre> | HGC TB13NS | 0.053 | <p>Side Auxiliary Contacts</p>  | |
| 2NO + 2NC | <pre> 53 61 71 83 o o o o o b b o 54 62 72 84 </pre> | HGC TB22NS | | | |
| 3NO + 1NC | <pre> 53 61 73 83 o o o o o b b o 54 62 74 84 </pre> | HGC TB31NS | 0.053 | <p>Side Auxiliary Contacts</p>  | |
| 4NO | <pre> 53 63 73 83 o o o o o o o o 54 64 74 84 </pre> | HGC TB40NS | | | |
| 1NO + 1NC | <pre> 53/84 61/72 o o o o 54/83 62/71 </pre> | HGC SB40 11NS | 0.028 | HGC9 - 40 | <p>Side Auxiliary Contacts</p>  <p>※ Maximum combination of b auxiliary contacts is 4NC.</p> |
| | | HGC SB100 11NS | 0.053 | HGC50 - 100 | |
| | | HGC SB800 11NS | 0.042 | HGC115 - 800 | |

Accessories

Mechanical Interlock Unit

Mechanical interlock unit is a device provided to ensure that the magnetic contactor is engaged in during reverse operation. Mechanical interlock unit provides reliable interlocking between two contactors.

Rating and Selection

| Code | Applicable Contactor | Weight (kg) |
|-----------|----------------------|-------------|
| HGC IU40 | HGC9 - 40 | 0.03 |
| HGC IU100 | HGC50 - 100 | 0.03 |
| HGC IU265 | HGC115 - 265 | 0.081 |
| HGC IU800 | HGC300 - 800 | 0.101 |

Handling

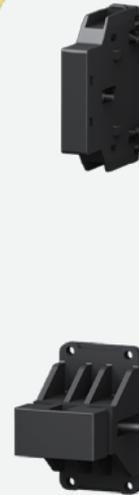
Mechanical interlock unit must not be installed vertically.

the Interlock should be connected via NC contacts for stable operation.

Please remove side auxiliary contact block first between contactors (HGC115 - 800), then install mechanical interlock unit.

Simultaneous closing by excessive force may cause damage.

Mechanical interlock unit is not applicable for DC type HGC40 - 100.



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HGC9 - 100

HGC115 - 800



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After disassembling side auxiliary contacts, install the mechanical interlock unit between contactors.

Mechanical Latching Block

Mechanical latching block keeps the contactor and control relay in the energized state even after a power failure. Mechanical latching block which is designed as a module is easy to assemble with magnetic contactor or control relay.

Order Information

| Model | Code | Current | Operation Voltage | Applicable Contactor |
|-----------|----------------|-------------|-------------------|----------------------|
| HGC LB100 | HGC LB100 F024 | AC/DC | 24 V | HGC9 - 100 HGR |
| | HGC LB100 F048 | | 48 V | |
| | HGC LB100 F110 | | 100 - 125 V | |
| | HGC LB100 F220 | 200 - 240 V | | |
| | HGC LB100 A440 | AC | 440 V | |



Rating and Selection

| | | |
|------------------------|----------|--------------------------------------|
| Coil Power Consumption | VA | 25 |
| | W | 20 |
| Operation Voltage | V | $(0.85 - 1.1) \times U_c$ |
| Operation Frequency | Cycle/h | 1,200 |
| Operation Voltage | AC | 24, 48, 100 - 125, 200 - 240 V 440 V |
| | DC | 24, 48, 100 - 125, 200 - 240 V |
| Mechanical Lifetime | X 10,000 | 50 |
| Weight | kg | 0.1 |



سازه گستر پایتخت

Handling

- Mechanical latching block starts to latch the contactor or control relay when it is energized, and keep latching during coil voltage drop-out of contactor or control relay.

To Turn OFF

- Manual: Push up the lever to "O" position.
- Electrical: Supply power to the mechanical latching block.
- : The power should be OFF before supplying power to the latching block.

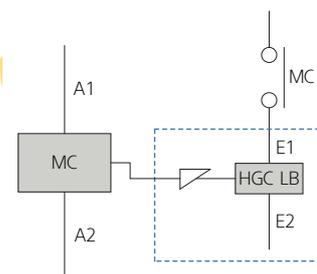
To Turn ON

- By pushing "I", located in the center of latching block, latching block can start to latch without the energized coil.

Caution

- Contactor (or control relay) and mechanical latching block should not be used at the same time to supply control power.
- Mechanical latching block must not receive control power for more than 1 second.
- Please refer to the circuit diagram on the right.

Circuit Diagram



※ A1/A2: Coil Terminal,
E1/E2: Latching Block Terminal

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Accessories

Surge Absorber

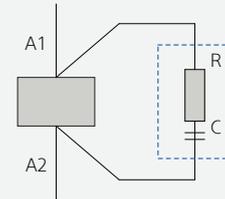
Surge Absorber (RC-Unit)

- Surge voltage occurs during the operation of contactor or control relay, and it is normally 10 - 20 times of rated voltage. Surge absorber drops the surge voltage less than 3 times of rated voltage.
- Surge absorber is required on accurate control circuit, especially for PLC circuit.
- Surge absorber prevents electronic components from high surge voltage damage.
- Surge absorber is applicable for both 50 Hz and 60 Hz. (for RC-Unit only)



Rating and Selection

| Product | Code | Operation Voltage | Applicable Contactor | Weight (kg) |
|---------|----------------|-------------------|----------------------|-------------|
| RC-Unit | HGC RC40 Y048 | AC24 - 48 V | HGC9 - 32, HGR | 0,029 |
| | HGC RC40 Y220 | AC110 - 220 V | | |
| | HGC RC40 Y380 | AC240 - 380 V | HGC40 - 100 | |
| | HGC RC100 Y048 | AC24 - 48 V | | |
| | HGC RC100 Y220 | AC110 - 220 V | | |
| | HGC RC100 Y380 | AC240 - 380 V | | |



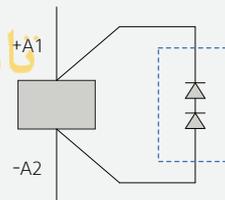
Clamping Diode

- Clamping diode is used for the purpose of preventing counter electromotive force on DC power supply.
- Clamping diode has to be installed when coil is connected in parallel.
- Clamping diode prevents electronic components from burning by counter electromotive force.



Rating and Selection

| Product | Code | Operation Voltage | Applicable Contactor | Weight (kg) |
|----------------|-----------|-------------------|----------------------|-------------|
| Clamping Diode | HGC CD100 | DC24 - 220 V | HGC9 - 100, HGR | 0,029 |



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Electronic Timer Block

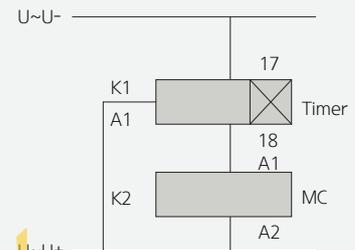
- Electronic timer block has modularized design which is space-saving and easy-assembling model.
- Wide voltage range of both AC and DC is applicable.
- Electronic timer block has both on-delay and interval function in one timer and it is suitable for various applications including Y- Δ starter.

Rating and Selection

| Code | Applicable Contactor | Operation Voltage |
|---------|----------------------|-------------------|
| HGC ET1 | HGC9 - 100, HGR | AC/DC90 - 240 V |
| HGC ET2 | | AC/DC24 - 60 V |

Rating and Features

| Model | Code | HGC ET1 | HGC ET2 |
|-------------------|------------|-----------------------------|---------|
| Voltage Band | AC/DC V | 90 - 240 | 24 - 60 |
| Operation Voltage | V | (0.8 - 1.1) x rated voltage | |
| Breaking Capacity | VA | 90 | |
| Maximum Load | VA | 15 | |
| Delay Time | Position A | 10 - 220 | |
| | Position B | 0.15 - 15 | |
| Precision | % | ± 5 | |
| Error Ratio | % | 0.1 | |
| | Time | 50 ms | |
| Weight | kg | 0.053 | |



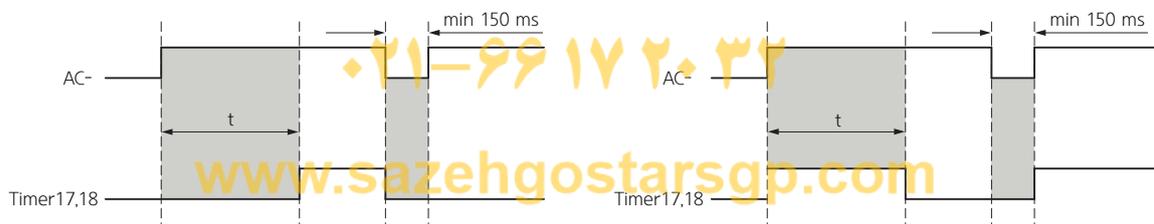
※ A1/A2: Coil Terminal 17/18: Timer Terminal

Operation Concept Map

تامین کننده ملزومات برق

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※ After power is off, reoperation delay time is 150 ms.



• Position 1: On-Delay / t: Control Time 0.15...220 sec

• Position 2: Interval Timer

Accessories

Control Coil

| Product | Operation Voltage | | Code | | | | |
|--|---|---------|----------------------------|----------------------|---------------|---------------|---------------|
| | Frequency | V | Applicable Contactor | | | | |
|  | AC60 Hz | 24 | HGC9 - 18 | HGC25 - 40 | HGC50 - 65 | HGC75 - 100 | |
| | | 48 | HGCOL18 A24 | HGCOL40 A24 | HGCOL65 A24 | HGCOL100 A24 | |
| | | 110 | HGCOL18 A48 | HGCOL40 A48 | HGCOL65 A48 | HGCOL100 A48 | |
| | | 120 | HGCOL18 A110 | HGCOL40 A110 | HGCOL65 A110 | HGCOL100 A110 | |
| | | 120 | HGCOL18 A120 | HGCOL40 A120 | HGCOL65 A120 | HGCOL100 A120 | |
| | | 220 | HGCOL18 A220 | HGCOL40 A220 | HGCOL65 A220 | HGCOL100 A220 | |
| | | 240 | HGCOL18 A240 | HGCOL40 A240 | HGCOL65 A240 | HGCOL100 A240 | |
| | | 380 | HGCOL18 A380 | HGCOL40 A380 | HGCOL65 A380 | HGCOL100 A380 | |
| | | 440 | HGCOL18 A440 | HGCOL40 A440 | HGCOL65 A440 | HGCOL100 A440 | |
| | | AC50 Hz | 24 | HGCOL18 X24 | HGCOL40 X24 | HGCOL65 X24 | HGCOL100 X24 |
| | | | 48 | HGCOL18 X48 | HGCOL40 X48 | HGCOL65 X48 | HGCOL100 X48 |
| | | | 110 | HGCOL18 X110 | HGCOL40 X110 | HGCOL65 X110 | HGCOL100 X110 |
| | 120 | | HGCOL18 X120 | HGCOL40 X120 | HGCOL65 X120 | HGCOL100 X120 | |
| | 220 | | HGCOL18 X220 | HGCOL40 X220 | HGCOL65 X220 | HGCOL100 X220 | |
| | 240 | | HGCOL18 X240 | HGCOL40 X240 | HGCOL65 X240 | HGCOL100 X240 | |
| | 380 | | HGCOL18 X380 | HGCOL40 X380 | HGCOL65 X380 | HGCOL100 X380 | |
| | 440 | | HGCOL18 X440 | HGCOL40 X440 | HGCOL65 X440 | HGCOL100 X440 | |
| | DC | 24 | HGCOL18 D24 | HGCOL40 D24 | HGCOL65 D24 | HGCOL100 D24 | |
| | | 48 | HGCOL18 D48 | HGCOL40 D48 | HGCOL65 D48 | HGCOL100 D48 | |
| | | 110 | HGCOL18 D110 | HGCOL40 D110 | HGCOL65 D110 | HGCOL100 D110 | |
| | | 120 | HGCOL18 D120 | HGCOL40 D120 | HGCOL65 D120 | HGCOL100 D120 | |
| | | 220 | HGCOL18 D220 | HGCOL40 D220 | HGCOL65 D220 | HGCOL100 D220 | |
| |  <p>※ When ordering HGC115 - 800's coil, AD Converter assembly will be provided.</p> | Voltage | | Applicable Contactor | | | |
| | | | 24 | AC24 - 26 DC24 | HGC115 - 150 | HGC185 - 265 | HGC300 - 500 |
| 48 | | | AC44 - 52 DC48 | HGC115 - 150 | HGC185 - 265 | HGC300 - 500 | HGC630 - 800 |
| 110 | | | AC100-127 DC100-110 | - | - | - | HGCOL800 F110 |
| 220 | | | AC100 - 127 DC100 - 110 | HGCOL150 F220 | HGCOL265 F220 | HGCOL400 F220 | - |
| 220 | | | AC200 - 240 DC200 - 220 | - | - | - | HGCOL800 F220 |
| 440 | | | AC380 - 450 | HGCOL150 F440 | HGCOL265 F440 | HGCOL400 F440 | HGCOL800 F440 |

※ Control relay coils are marked as HGROL A220, D100, etc., and P-type is not for sale individually.

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Contacts and Covers

| Product | Model | Contact | Code | Components |
|--|-----------|----------------------|-----------|--|
| Main Contact | | Applicable Contactor | | 1 SET Composition |
|  <p>Moving Contact</p>  <p>Fixed Contact</p> | HGCTIP | HGC9 | HGCTIP9 | Move Contact: 3 EA Fix Contact: 6 EA |
| | | HGC12 | HGCTIP12 | |
| | | HGC18 | HGCTIP18 | |
| | | HGC25 | HGCTIP25 | |
| | | HGC32 | HGCTIP32 | |
| | | HGC40 | HGCTIP40 | |
| | | HGC50 | HGCTIP50 | |
| | | HGC65 | HGCTIP65 | |
| | | HGC75 | HGCTIP75 | |
| | | HGC85 | HGCTIP85 | |
| | | HGC100 | HGCTIP100 | |
| | | HGC115 | HGCTIP115 | |
| | | HGC130 | HGCTIP130 | |
| | | HGC150 | HGCTIP150 | |
| | | HGC185 | HGCTIP185 | |
| | | HGC225 | HGCTIP225 | |
| | | HGC265 | HGCTIP265 | |
| | | HGC300 | HGCTIP300 | |
| | | HGC400 | HGCTIP400 | |
| | | HGC500 | HGCTIP500 | |
| HGC630 | HGCTIP630 | | | |
| HGC800 | HGCTIP800 | | | |
| Terminal Cover | | | | |
|  <p>Main Terminal Cover</p>  <p>Coil Terminal Cover</p> | HGCP | HGC9 - 18 | HGCP18 | Main Terminal Cover: 2 EA Coil Terminal Cover: 2 EA Auxiliary Terminal Cover: 2 EA |
| | | HGC18 - 40 | HGCP40 | |
| | | HGC50 - 65 | HGCP65 | |
| | | HGC75 - 100 | HGCP100 | |
| | | HGC115 - 150 | HGCP150 | Main Terminal Cover: 2 EA Coil Terminal Cover: 1 EA Auxiliary Terminal Cover: 8 EA |
| | | HGC185 - 265 | HGCP265 | |
| | | HGC300 - 500 | HGCP500 | |
| | | HGC630 - 800 | HGCP800 | |
| Front Protection Cover | | | | |
|  | HGFC | HGC9 - 100 | HGFC100 | 1 EA |
| | | HGC115 - 150 | HGFC150 | |
| | | HGC185 - 265 | HGFC265 | |
| | | HGC300 - 500 | HGFC400 | |
| | | HGC630 - 800 | HGFC800 | |

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Technical Information

Features and Applications

Contactors can be selected according to categories: Rated thermal current (Ith), rated operating current (Ie), making and breaking capacities, electrical and mechanical endurance, and utilization.

| | | |
|--|------|---|
|  IEC 60947 | AC1 | Non-inductive or slightly inductive loads, resistance furnaces |
| | AC2 | Slip-ring motors: starting, plugging |
| | AC3 | Squirrel cage motors: starting, switching off motors during running |
| | AC4 | Squirrel cage motors: plugging, inching |
| | AC12 | Resistive heating loads |
| | AC15 | Coil loads |
| | DC1 | Non-inductive or slightly inductive loads, resistance furnaces |
| | DC3 | Shunt motors: starting, plugging, and inching |
| | DC5 | Series motors: starting, plugging, and inching |
| | DC12 | Resistive heating loads |
| | DC13 | Coil loads |

Making and Breaking Capacities According to Utilization Categories

| Category | Making | | | | Making & Breaking | | | |
|----------|---------|---------|----------------|--------|-------------------|---------|----------------|--------|
| | Current | Voltage | Cos φ | Cycles | Current | Voltage | Cos φ | Cycles |
| AC1 | - | - | - | - | 1.5 Ie | 1.05 Ue | 0.8 | 50 |
| AC2 | - | - | - | - | 4.0 Ie | 1.05 Ue | 0.65 | 50 |
| AC3 | 10 Ie | Ue | 0.45 (≤ 100 A) | 50 | 8.0 Ie | 1.05 Ue | 0.45 (≤ 100 A) | 50 |
| AC4 | 12Ie | Ue | 0.35 (> 100 A) | 50 | 10.0 Ie | 1.05 Ue | 0.35 (> 100 A) | 50 |
| AC15 | - | - | - | - | 10 Ie | 1.1 Ue | 0.3 | 10 |
| DC1 | - | - | - | - | 1.5 Ie | 1.05 Ue | 1 | 50 |
| DC3 | - | - | - | - | 4.0 Ie | 1.05 Ue | 2.5 | 50 |
| DC5 | - | - | - | - | 4.0 Ie | 1.05 Ue | 15 | 50 |
| DC13 | - | - | - | - | 1.1 Ie | 1.1 Ue | 6P | 10 |

Operating Times According to Utilization Categories

| Category | Making & Breaking | | | | On-Time | Cycles |
|----------|-------------------|---------|-------------------|----------|---------|--------|
| | Current | Voltage | Cos φ | On-Time | | |
| AC1 | 1.0 Ie | 1.05 Ue | 0.8 | 0.05 Sec | 6,000 | |
| AC2 | 2.0 Ie | 1.05 Ue | 0.65 | 0.05 Sec | 6,000 | |
| AC3 | 2.0 Ie | 1.05 Ue | 0.45 (Ie ≤ 100 A) | 0.05 Sec | 6,000 | |
| AC4 | 6.0 Ie | 1.05 Ue | 0.35 (Ie > 100 A) | 0.05 Sec | 6,000 | |
| AC15 | 10 Ie | 1.1 Ue | 0.3 | 0.05 Sec | 6,000 | |
| DC1 | 1.0 Ie | 1.05 Ue | 1 | 0.05 Sec | 6,000 | |
| DC3 | 2.5 Ie | 1.05 Ue | 2 | 0.05 Sec | 6,000 | |
| DC5 | 2.5 Ie | 1.05 Ue | 7.5 | 0.05 Sec | 6,000 | |
| DC13 | 1.1 Ie | 1.1 Ue | 6P | 0.05 Sec | 6,000 | |

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Electrical Endurance According to Utilization Categories

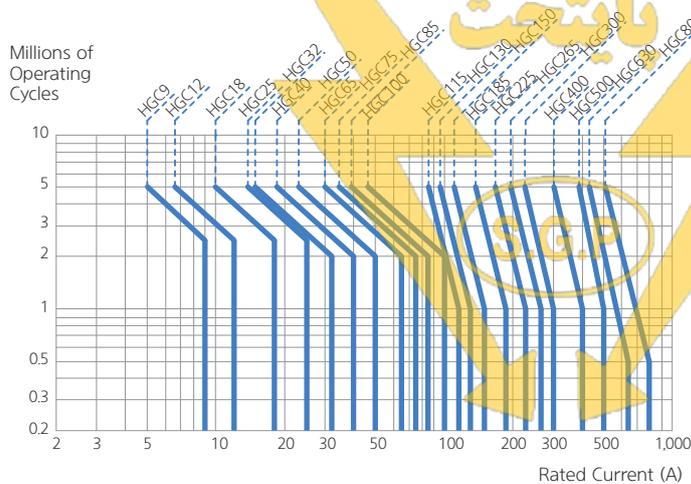
| Category | Making | | | Breaking | | |
|----------|---------|---------|------------------|----------|---------|------------------|
| | Current | Voltage | Cos φ | Current | Voltage | Cos φ |
| AC1 | 1.0 Ie | 1 Ue | 0.95 | 1 Ie | 1 Ue | 0.95 |
| AC2 | 2.5 Ie | 1 Ue | 0.65 | 2.5 Ie | 1 Ue | 0.65 |
| AC3 | 6 Ie | 1 Ue | 0.65 (Ie ≤ 17 A) | 6 Ie | 0.17 Ue | 0.65 (Ie ≤ 17 A) |
| AC4 | 6 Ie | 1 Ue | 0.35 (Ie > 17 A) | 6 Ie | 1 Ue | 0.35 (Ie > 17 A) |
| DC1 | 1 Ie | 1 Ue | 1 | 1 Ie | 1 Ue | 1 |
| DC3 | 2.5 Ie | 1 Ue | 2 | 2.5 Ie | 1 Ue | 2 |
| DC5 | 2.5 Ie | 1 Ue | 7.5 | 2.5 Ie | 1 Ue | 7.5 |

※ Ie: Rated operational current Ue: Rated operational voltage

Selections of AC3 and AC4 Contactors

- When operation frequency is lower than the recommendation, the load capacities can be increased, but should not exceed the rated making and breaking capacities of the contactors. If the thermal overload relay is used, the short-circuit protection should be carefully considered and the recommended fuse ratings should be obeyed.
- The contactors can be chosen according to the electrical lifetime by means of the following diagrams.

AC3 Electrical Lifetime Curve (380 - 440 VAC)

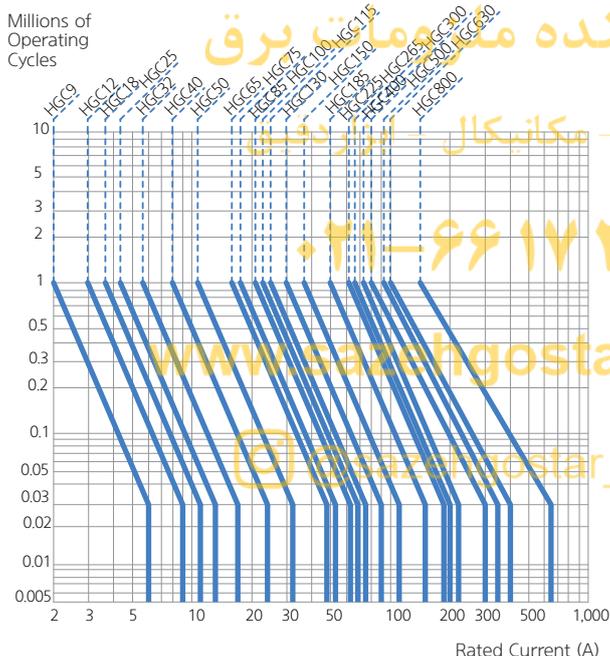


The electrical lifetime is calculated by the following formula if the load consist of AC3 and AC4 category.

$$L = \frac{1}{P1/L1 + P2/L2 + \dots + Pn/Ln}$$

- L: Electrical lifetime of contactor
- L1: Electrical lifetime in AC3 duty
- L2: Electrical lifetime in AC4 duty
- P1: Coefficient of use in AC3 duty
- P2: Coefficient of use in AC4 duty
- P1 + P2 + ... + Pn = 1

AC4 Electrical Lifetime Curve (380 - 440 VAC)



※ Example

Motor: 80 A full load current at AC 440 V, 480 A starting current (6 times of rated current)
 AC3 use: 70 A rated current with 95 % coefficient
 AC4 use: 70 A rated current (420 A starting current) with 5 % coefficient

$$L = \frac{10^6}{0.95/2.0 + 0.05/0.03} = 0.47 \times 10^6$$

- On AC3 electrical lifetime curve, the life time of HGC is 2.0 x 10⁶ (When operation current is 70 A)
- On AC4 electrical lifetime curve, the life time of HGC100 is 0.03 x 10⁶ (When operation current is 400 A)

Technical Information

Coil Characteristics

| Contactor Model | | | | HGC9 | HGC12 | HGC18 | HGC25 | HGC32 | HGC40 | HGC50 | HGC65 | HGC75 | HGC85 | HGC100 | | | | | | | | |
|----------------------|--|---------------------------------|------------|---|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|------------------------|----------|--|----------|--|----|-------------------------|
| Power Consumption | AC Coil | AC operation coil(220 V/60 Hz) | Pull-in | VA | 80 | 80 | 80 | 80 | 80 | 80 | 200 | 200 | 300 | 300 | 300 | | | | | | | |
| | | | Hold-in | VA/W | 10/2.5 | 10/2.5 | 10/2.5 | 10/2.5 | 10/2.5 | 10/2.5 | 15/5 | 15/5 | 25/10 | 25/10 | 25/10 | 25/10 | | | | | | |
| | DC Coil | DC operation coil | Pull-in | W | 10 | 10 | 10 | 10 | 10 | 10 | 200 | 200 | 350 | 350 | 350 | | | | | | | |
| | | | Hold-in | W | 10 | 10 | 10 | 10 | 10 | 5 | 5 | 8 | 8 | 8 | | | | | | | | |
| | AC & DC Common Coil | AC operation coil (220 V/60 Hz) | Pull-in | VA | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |
| | | | Hold-in | VA/W | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |
| | | AC operation coil (110 V/60 Hz) | Pull-in | VA | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |
| | | | Hold-in | VA/W | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |
| | | DC operation coil | Pull-in | W | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |
| | | | Hold-in | W | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |
| Operating Time | AC Coil | Making DC Coil | AC Control | msec | 12 - 30 | 12 - 30 | 12 - 30 | 12 - 30 | 12 - 30 | 12 - 30 | 9 - 18 | 9 - 18 | 15 - 30 | 15 - 30 | 15 - 30 | | | | | | | |
| | | | | | DC Control | 45 - 55 | 45 - 55 | 45 - 55 | 45 - 55 | 45 - 55 | 45 - 55 | 10 - 18 | 10 - 18 | 15 - 30 | 15 - 30 | 15 - 30 | | | | | | |
| | AC & DC Common Coil | Main contact ON | AC Control | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |
| | | | DC Control | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |
| | AC Coil | Breaking DC Coil | AC Control | msec | 8 - 15 | 8 - 15 | 8 - 15 | 8 - 15 | 8 - 15 | 8 - 15 | 13 - 20 | 13 - 20 | 13 - 20 | 13 - 20 | 13 - 20 | | | | | | | |
| | | | | | DC Control | 6 - 18 | 6 - 18 | 6 - 18 | 6 - 18 | 6 - 18 | 6 - 18 | 13 - 20 | 13 - 20 | 13 - 20 | 13 - 20 | 13 - 20 | | | | | | |
| | AC & DC Common Coil | Main contact Off | AC Control | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |
| | | | DC Control | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | |
| Control TR | AC or DC Operation Coil | Min. Capacities | VA | 60 | 60 | 60 | 60 | 60 | 60 | 150 | 150 | 200 | 200 | 200 | | | | | | | | |
| | AC/DC Common Coil | | | - | - | - | - | - | - | - | - | - | - | - | | | | | | | | |
| Coil Control Voltage | | | | <p>1) Application voltage: 85 - 110 % 2) Applied with higher rated voltage could shorten the lifetime of coil and electromagnetic parts, even make it burn. 3) If other coil voltage is applied, please contact HHI.</p> <table border="1"> <thead> <tr> <th>Category</th> <th>Coil Operation Voltage</th> </tr> </thead> <tbody> <tr> <td>AC 50 Hz</td> <td>24, 48, 110, 120, 220, 240, 380, 440 V</td> </tr> <tr> <td>AC 60 Hz</td> <td>24, 48, 110, 120, 220, 240, 380, 440 V</td> </tr> <tr> <td>DC</td> <td>24, 48, 110, 120, 220 V</td> </tr> </tbody> </table> | | | | | | | | | | | Category | Coil Operation Voltage | AC 50 Hz | 24, 48, 110, 120, 220, 240, 380, 440 V | AC 60 Hz | 24, 48, 110, 120, 220, 240, 380, 440 V | DC | 24, 48, 110, 120, 220 V |
| Category | Coil Operation Voltage | | | | | | | | | | | | | | | | | | | | | |
| AC 50 Hz | 24, 48, 110, 120, 220, 240, 380, 440 V | | | | | | | | | | | | | | | | | | | | | |
| AC 60 Hz | 24, 48, 110, 120, 220, 240, 380, 440 V | | | | | | | | | | | | | | | | | | | | | |
| DC | 24, 48, 110, 120, 220 V | | | | | | | | | | | | | | | | | | | | | |

※ The operating time of AC/DC common coil type MC is average time in the condition of AC220 V 60 HZ, and DC110 V.

Auxiliary Contact Specification

IEC 60947 Standard



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| Rated Insulation Voltage (Ui) | AC750 V | | | | | | | |
|------------------------------------|-----------------------|------|------------------|-----|-----------------------|-------|------------------|-------|
| Conventional Thermal Current (Ith) | 16 A | | | | | | | |
| Rated Operational Current | AC12 (Resistive Load) | | AC15 (Coil Load) | | DC12 (Resistive Load) | | DC13 (Coil Load) | |
| | 110 V | 10 A | 110 V | 6 A | 24 V | 4 A | 24 V | 4 A |
| | 220 V | 8 A | 220 V | 4 A | 48 V | 2.5 A | 48 V | 2.5 A |
| | 440 V | 6 A | 440 V | 3 A | 125 V | 1.1 A | 125 V | 1.1 A |
| | 690 V | 2 A | 690 V | 2 A | 220 V | 0.3 A | 250 V | 0.3 A |



| HGC115 | HGC130 | HGC150 | HGC185 | HGC225 | HGC265 | HGC300 | HGC400 | HGC500 | HGC630 | HGC800 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - |
| 530 | 530 | 530 | 360 | 360 | 360 | 390 | 390 | 390 | 1,700 | 1,700 |
| 7.4/3.8 | 7.4/3.8 | 7.4/3.8 | 9.3/5.8 | 9.3/5.8 | 9.3/5.8 | 9.3/5.8 | 9.3/5.8 | 9.3/5.8 | 17.1/10.6 | 17.1/10.6 |
| 240 | 240 | 240 | 250 | 250 | 250 | 250 | 250 | 250 | 850 | 850 |
| 3.3/2.1 | 3.3/2.1 | 3.3/2.1 | 6.4/4.4 | 6.4/4.4 | 6.4/4.4 | 6.4/4.4 | 6.4/4.4 | 6.4/4.4 | 10.5/8 | 10.5/8 |
| 193 | 193 | 193 | 420 | 420 | 420 | 420 | 420 | 420 | 850 | 850 |
| 2.3 | 2.3 | 2.3 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 9.5 | 9.5 |
| - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - |
| 40 - 80 | 40 - 80 | 40 - 80 | 40 - 80 | 40 - 80 | 40 - 80 | 40 - 80 | 40 - 80 | 40 - 80 | 45 - 150 | 45 - 150 |
| 70 - 80 | 70 - 80 | 70 - 80 | 35 - 45 | 35 - 70 | 35 - 70 | 35 - 70 | 35 - 70 | 35 - 70 | 45 - 150 | 45 - 150 |
| - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - |
| 18 - 25 | 18 - 25 | 18 - 25 | 40 - 50 | 40 - 50 | 40 - 50 | 35 - 50 | 35 - 50 | 35 - 50 | 45 - 150 | 45 - 150 |
| 15 - 20 | 15 - 20 | 15 - 20 | 35 - 45 | 35 - 45 | 35 - 45 | 35 - 45 | 35 - 45 | 35 - 45 | 45 - 150 | 45 - 150 |
| - | - | - | - | - | - | - | - | - | - | - |
| 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 1,000 | 1,000 |

AC/DC Common Coil

| Nominal Voltage | AC | DC |
|-----------------|-------------|-------------|
| 24 V | 24 - 26 V | 24 V |
| 48 V | 44 - 52 V | 48 V |
| 220 V | 100 - 240 V | 110 - 220 V |
| 440 V | 380 - 450 V | - |

AC/DC Common Coil

| Nominal Voltage | AC | DC |
|-----------------|-------------|-------------|
| 48 V | 44 - 52 V | 48 V |
| 110 V | 100 - 127 V | 100 - 110 V |
| 220 V | 200 - 240 V | 200 - 220 V |
| 440 V | 380 - 450 V | - |

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Auxiliary Contact



UL or CSA Standard

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| Thermal Current | 16 A | | | |
|---------------------------|-------|-------|-------|-------|
| | AC | | DC | |
| Rated Operational Current | 120 V | 6 A | 125 V | 1.1 A |
| | 240 V | 3 A | 250 V | 0.3 A |
| | 480 V | 1.5 A | 440 V | 0.2 A |
| | 600 V | 1.2 A | 600 V | 0.2 A |

* Contact Rating Code: A600 - P300

Technical Information

Rated Operational Current with DC Load

| Connection | Application | Operation Voltage | HGC9 | HGC12 | HGC18 | HGC25 | HGC32 | HGC40 | HGC50 | HGC65 | HGC75 | HGC85 | HGC100 |
|-------------------|------------------------------------|-------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 2 Poles in Series | DC1 Resistive Load (L/R ≤ 1ms) | 24 V | 10 | 12 | 18 | 20 | 25 | 35 | 50 | 65 | 65 | 75 | 80 |
| | | 48 V | 10 | 12 | 18 | 20 | 25 | 35 | 40 | 65 | 65 | 65 | 65 |
| | | 110 V | 6 | 10 | 13 | 15 | 25 | 25 | 35 | 45 | 45 | 50 | 50 |
| | | 220 V | 3 | 7 | 8 | 10 | 12 | 12 | 15 | 15 | 15 | 20 | 20 |
| | DC3,DC5 DC Motor Load (L/R ≤ 15ms) | 24 V | 8 | 12 | 12 | 20 | 25 | 35 | 45 | 45 | 45 | 65 | 65 |
| | | 48 V | 4 | 6 | 6 | 15 | 20 | 20 | 25 | 25 | 25 | 40 | 40 |
| | | 110 V | 2.5 | 4 | 4 | 8 | 10 | 10 | 15 | 15 | 15 | 20 | 20 |
| | | 220 V | 0.8 | 1.2 | 1.2 | 2 | 3 | 3 | 3.5 | 3.5 | 3.5 | 5 | 5 |
| | DC13 Coil Load (L/R ≤ 40ms) | 24 V | 8 | 12 | 12 | 20 | 25 | 35 | - | - | - | - | - |
| | | 48 V | 4 | 6 | 6 | 12 | 15 | 15 | - | - | - | - | - |
| | | 110 V | 2 | 3 | 3 | 3 | 4 | 4 | - | - | - | - | - |
| | | 220 V | 0.3 | 0.5 | 0.5 | 1.2 | 1.2 | 1.2 | - | - | - | - | - |
| 3 Poles in Series | DC1 Resistive Load (L/R ≤ 1ms) | 24 V | 10 | 12 | 18 | 20 | 25 | 35 | 50 | 65 | 65 | 75 | 80 |
| | | 48 V | 10 | 12 | 18 | 20 | 25 | 35 | 50 | 65 | 65 | 75 | 80 |
| | | 110 V | 8 | 12 | 18 | 20 | 25 | 35 | 50 | 65 | 65 | 75 | 80 |
| | | 220 V | 8 | 12 | 18 | 20 | 25 | 30 | 40 | 50 | 50 | 55 | 60 |
| | DC3,DC5 DC Motor Load (L/R ≤ 15ms) | 24 V | 8 | 12 | 12 | 20 | 25 | 35 | 50 | 50 | 50 | 80 | 80 |
| | | 48 V | 6 | 10 | 10 | 20 | 25 | 30 | 35 | 35 | 35 | 60 | 60 |
| | | 110 V | 4 | 8 | 8 | 15 | 20 | 20 | 30 | 30 | 30 | 50 | 50 |
| | | 220 V | 2 | 4 | 4 | 8 | 10 | 10 | 12 | 12 | 12 | 20 | 20 |
| | DC13 Coil Load (L/R ≤ 40 ms) | 24 V | 8 | 12 | 12 | 20 | 25 | 35 | - | - | - | - | - |
| | | 48 V | 6 | 10 | 10 | 15 | 25 | 35 | - | - | - | - | - |
| | | 110 V | 3 | 5 | 5 | 10 | 12 | 12 | - | - | - | - | - |
| | | 220 V | 0.8 | 2 | 2 | 4 | 4 | 4 | - | - | - | - | - |

| Connection | Application | Operation Voltage | HGC115 | HGC130 | HGC150 | HGC185 | HGC225 | HGC265 | HGC300 | HGC400 | HGC500 | HGC630 | HGC800 |
|-------------------|------------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2 Poles in Series | DC1 Resistive Load (L/R ≤ 1ms) | 24 V | 100 | 120 | 150 | 180 | 220 | 260 | 300 | 400 | 500 | 630 | 800 |
| | | 48 V | 100 | 100 | 120 | 180 | 180 | 220 | 240 | 240 | 300 | 630 | 800 |
| | | 110 V | 80 | 80 | 100 | 150 | 150 | 180 | 200 | 200 | 220 | 630 | 630 |
| | | 220 V | 50 | 50 | 100 | 150 | 150 | 180 | 200 | 200 | 220 | 630 | 630 |
| | DC3,DC5 DC Motor Load (L/R ≤ 15ms) | 24 V | 100 | 120 | 150 | 180 | 220 | 260 | 300 | 400 | 500 | 630 | 800 |
| | | 48 V | 60 | 60 | 100 | 150 | 150 | 180 | 200 | 200 | 260 | 630 | 800 |
| | | 110 V | 40 | 40 | 80 | 120 | 120 | 150 | 150 | 150 | 180 | 630 | 630 |
| | | 220 V | 30 | 30 | 60 | 80 | 80 | 80 | 90 | 90 | 130 | 210 | 210 |
| | DC13 Coil Load (L/R ≤ 40ms) | 24 V | - | - | - | - | - | - | - | - | - | - | - |
| | | 48 V | - | - | - | - | - | - | - | - | - | - | - |
| | | 110 V | - | - | - | - | - | - | - | - | - | - | - |
| | | 220 V | - | - | - | - | - | - | - | - | - | - | - |
| 3 Poles in Series | DC1 Resistive Load (L/R ≤ 1ms) | 24 V | 100 | 120 | 150 | 180 | 220 | 260 | 300 | 400 | 500 | 630 | 800 |
| | | 48 V | 100 | 120 | 150 | 180 | 220 | 260 | 300 | 400 | 500 | 630 | 800 |
| | | 110 V | 100 | 100 | 150 | 180 | 220 | 260 | 300 | 400 | 500 | 630 | 630 |
| | | 220 V | 80 | 80 | 150 | 180 | 220 | 260 | 300 | 300 | 400 | 630 | 630 |
| | DC3,DC5 DC Motor Load (L/R ≤ 15ms) | 24 V | 100 | 120 | 150 | 180 | 220 | 260 | 300 | 400 | 500 | 630 | 800 |
| | | 48 V | 60 | 60 | 100 | 150 | 150 | 180 | 200 | 200 | 280 | 630 | 800 |
| | | 110 V | 80 | 80 | 120 | 150 | 150 | 180 | 200 | 200 | 260 | 630 | 630 |
| | | 220 V | 50 | 50 | 80 | 100 | 100 | 130 | 150 | 150 | 180 | 310 | 310 |
| | DC13 Coil Load (L/R ≤ 40 ms) | 24 V | - | - | - | - | - | - | - | - | - | - | - |
| | | 48 V | - | - | - | - | - | - | - | - | - | - | - |
| | | 110 V | - | - | - | - | - | - | - | - | - | - | - |
| | | 220 V | - | - | - | - | - | - | - | - | - | - | - |

Specification for Tranformer and Condenser Load

| Load | Operational Voltage | HGC9 | HGC12 | HGC18 | HGC25 | HGC32 | HGC40 | HGC50 | HGC65 | HGC75 | HGC85 | HGC100 | |
|---------------------------|---------------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|----|
| Trans- former (kVA) | Single Phase | AC220 V | 1 | 1.5 | 2 | 2.5 | 3 | 4 | 5 | 7 | 8 | 9 | 10 |
| | | AC440 V | 1.5 | 2 | 3 | 4 | 5 | 7.5 | 10 | 15 | 17 | 18 | 20 |
| | Three Phase | AC220 V | 2 | 3 | 3.5 | 4 | 5 | 6.5 | 10 | 12 | 13 | 15 | 18 |
| | | AC440 V | 2.5 | 4 | 5 | 7.5 | 10 | 12 | 18 | 25 | 27 | 30 | 35 |
| Condenser (kVAR) | Three Phase | AC220 V | 2 | 3 | 4 | 5 | 9 | 11 | 13 | 17 | 20 | 22 | 24 |
| | | AC440 V | 3 | 4 | 6 | 10 | 16 | 20 | 24 | 34 | 40 | 45 | 48 |

| Load | Operational Voltage | HGC115 | HGC130 | HGC150 | HGC185 | HGC225 | HGC265 | HGC300 | HGC400 | HGC500 | HGC630 | HGC800 | |
|---------------------------|---------------------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|
| Trans- former (kVA) | Single Phase | AC220 V | - | 15 | 17 | 20 | 25 | 30 | 33 | 44 | 55 | 65 | 90 |
| | | AC440 V | - | 25 | 33 | 40 | 50 | 57 | 66 | 90 | 110 | 130 | 175 |
| | Three Phase | AC220 V | - | 25 | 30 | 35 | 42 | 48 | 57 | 75 | 90 | 110 | 150 |
| | | AC440 V | - | 42 | 60 | 70 | 85 | 95 | 100 | 150 | 180 | 220 | 300 |
| Condenser (kVAR) | Three Phase | AC220 V | - | 29 | 35 | 42 | 58 | 63 | 69 | 92 | 115 | 145 | 185 |
| | | AC440 V | - | 58 | 70 | 84 | 115 | 125 | 139 | 185 | 230 | 291 | 369 |

※ - The inrush current of transformer shall be less than 30 times of rated current (RMS).
- Electrical Lifetime: 100,000 times (IEC 60947-4-1, AC6a, 6b)

Light load - Maximum Incandescent Lamp Quantity Per Contactor

Lighting Load Application

The contactor for lighting load can be selected by the rated thermal current (Ith) on the condition that inrush current does not exceed contactor's breaking capacity. Usually, lighting load switching frequency is smaller than the other applications, so electrical lifetime would not be the major parameter to select contactor.

Incandescent Lamp

The contactor for incandescent lamps can be selected according to AC3 utilization category considering inrush current at hot condition. The resistance of the incandescent lamp filament is small at cold condition, so the inrush current can be 13 - 16 times of the rated current instantaneously. However, the inrush current at hot condition is limited to 7 - 10 times of rated current by circuit impedance and self-heating. Therefore, it is recommended to consider the inrush current at hot condition rather than cold condition to select contactor.

| Power Voltage | | 110 V | | | | | | | |
|--------------------|-------|-------|-------|-------|-------|-------|-------|---------|---------|
| Lamp Power | | 100 W | 150 W | 200 W | 250 W | 300 W | 500 W | 1,000 W | 1,500 W |
| Contactor Model | HGC9 | 11 | 7 | 5 | 4 | 2 | 2 | 1 | - |
| | HGC12 | 14 | 8 | 6 | 5 | 4 | 2 | 1 | - |
| | HGC18 | 19 | 13 | 10 | 7 | 6 | 3 | 1 | 1 |
| | HGC25 | 20 | 13 | 10 | 8 | 6 | 3 | 1 | 1 |
| | HGC32 | 28 | 18 | 14 | 11 | 9 | 5 | 2 | 1 |
| | HGC40 | 38 | 25 | 19 | 15 | 12 | 7 | 3 | 2 |
| | HGC50 | 55 | 35 | 27 | 22 | 16 | 10 | 5 | 3 |

| Power Voltage | | 220 V | | | | | | | |
|--------------------|-------|-------|-------|-------|-------|-------|-------|---------|---------|
| Lamp Power | | 100 W | 150 W | 200 W | 250 W | 300 W | 500 W | 1,000 W | 1,500 W |
| Contactor Model | HGC9 | 22 | 14 | 11 | 8 | 7 | 4 | 2 | 1 |
| | HGC12 | 26 | 18 | 14 | 10 | 8 | 5 | 2 | 1 |
| | HGC18 | 38 | 25 | 20 | 15 | 13 | 7 | 3 | 2 |
| | HGC25 | 40 | 27 | 20 | 16 | 13 | 8 | 3 | 2 |
| | HGC32 | 55 | 36 | 28 | 22 | 18 | 11 | 5 | 3 |
| | HGC40 | 75 | 50 | 38 | 30 | 25 | 15 | 7 | 4 |
| | HGC50 | 105 | 70 | 54 | 43 | 35 | 22 | 10 | 6 |

Technical Information

Application for Y-Δ Starting

Voltage · Current · Torque for Y-Δ Starting

| Starting (Star Type Contactor / C3) | | | | | Operating (Delta Type Contactor / C2) | | |
|-------------------------------------|------------------|--------|-------------------|-----------------|---------------------------------------|-----------------|-----------------|
| Starting Method | Starting Current | Torque | Full Load Current | Contact Voltage | Full Load Current | Contact Current | Contact Voltage |
| Directly Online | 6 Im | 1.5 T | 6 Im | Em/√3 | Im | Im | Em/√3 |
| Star-delta | 2 Im | 0.5 T | 2 Im | Em/√3 | Im | Im/√3 | Em |

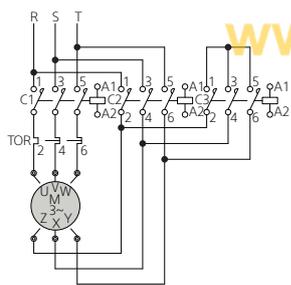
※ Im: Load current (delta type connection) Em: Line voltage - Tr: Rating voltage (assumed torque fluctuations)

Contactor and Thermal Overload Relay for Normal Y-Δ Starter

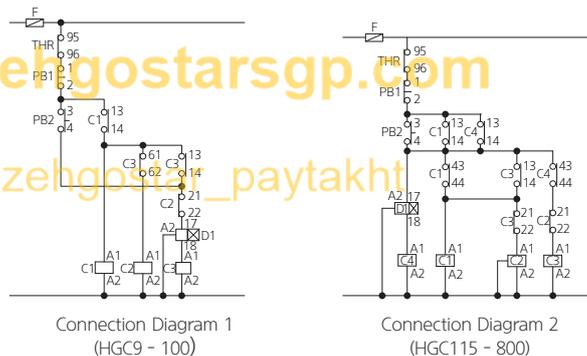
| 200 - 240 V AC, 3Ø, 60 Hz | | | | | | | 380 - 440 V AC, 3Ø, 60 Hz | | | | | | |
|---------------------------|-----|-----|--------------|-----------|-----------|---------|---------------------------|-----|-----|--------------|-----------|-----------|---------|
| Motor Capacity | | | Main Circuit | Δ Circuit | Y Circuit | TOR | Motor Capacity | | | Main Circuit | Δ Circuit | Y Circuit | TOR |
| kW | Hp | FLC | (C1) | (C2) | (C3) | | kW | Hp | FLC | (C1) | (C2) | (C3) | |
| 5.5 | 7.5 | 22 | HGC25 | HGC25 | HGC18 | HGT40K | 5.5 | 7.5 | 12 | HGC25 | HGC25 | HGC25 | HGT40K |
| 7.5 | 10 | 32 | HGC32 | HGC32 | HGC25 | HGT40K | 7.5 | 10 | 18 | HGC25 | HGC25 | HGC25 | HGT40K |
| 11 | 15 | 40 | HGC40 | HGC40 | HGC32 | HGT40K | 11 | 15 | 22 | HGC25 | HGC25 | HGC25 | HGT40K |
| 15 | 20 | 50 | HGC50 | HGC50 | HGC32 | HGT65K | 15 | 20 | 32 | HGC32 | HGC32 | HGC25 | HGT40K |
| 18.5 | 25 | 70 | HGC50 | HGC50 | HGC40 | HGT65K | 18.5 | 25 | 40 | HGC40 | HGC40 | HGC25 | HGT40K |
| 22 | 30 | 80 | HGC75 | HGC75 | HGC40 | HGT100K | 22 | 30 | 50 | HGC40 | HGC40 | HGC32 | HGT40K |
| 30 | 40 | 110 | HGC100 | HGC100 | HGC50 | HGT100K | 30 | 40 | 65 | HGC50 | HGC50 | HGC40 | HGT65K |
| 37 | 50 | 130 | HGC115 | HGC115 | HGC65 | HGT150K | 37 | 50 | 80 | HGC75 | HGC75 | HGC40 | HGT100K |
| 45 | 60 | 150 | HGC130 | HGC130 | HGC65 | HGT150K | 45 | 60 | 90 | HGC75 | HGC75 | HGC40 | HGT100K |
| 55 | 75 | 180 | HGC150 | HGC150 | HGC100 | HGT150K | 55 | 75 | 110 | HGC100 | HGC100 | HGC50 | HGT100K |
| 75 | 100 | 260 | HGC185 | HGC185 | HGC115 | HGT265K | 75 | 100 | 150 | HGC115 | HGC115 | HGC65 | HGT150K |
| 90 | 125 | 300 | HGC225 | HGC225 | HGC130 | HGT265K | 90 | 125 | 180 | HGC130 | HGC130 | HGC100 | HGT150K |
| 110 | 150 | 367 | HGC300 | HGC300 | HGC150 | HGT500K | 110 | 150 | 220 | HGC150 | HGC150 | HGC115 | HGT150K |
| 132 | 180 | 434 | HGC400 | HGC400 | HGC225 | HGT500K | 132 | 180 | 260 | HGC185 | HGC185 | HGC115 | HGT265K |
| 160 | 220 | 519 | HGC400 | HGC400 | HGC225 | HGT500K | 160 | 220 | 300 | HGC225 | HGC225 | HGC130 | HGT265K |
| 250 | 350 | 810 | HGC630 | HGC630 | HGC400 | HGT800K | 250 | 350 | 500 | HGC400 | HGC400 | HGC225 | HGT500K |
| 300 | - | - | - | - | - | - | 300 | 402 | 560 | HGC400 | HGC400 | HGC300 | HGT500K |

- ※ - Above data is based on squirrel cage motor (AC3) and slip-ring motor (AC2). Data is subject to change according to motor classes and motor manufacturers.
- Above data is based on less than 10 seconds of motor starting time. Motor starting time should be carefully considered when over 10 seconds of motor starting time is applied.
- Inrush current shall be carefully considered when a capacitor is used.
- Recommendable change-over time of Y-Δ is between 30 ms and 80 ms.
- 58 % of motor full load current is recommended for HGT setting current.

Main Circuit Diagram



Control Circuit



C1: Main MC C2: Delta MC C3: Star MC D1: Timer C4: Auxiliary Relay

Applicable Wire Size and Screwing Torque

Main Circuit

| Model | Terminal Screw | Applicable Wire Size (mm ²) | Ring Tongue Terminal (mm ²) | Screwing Torque (kgf.cm) |
|--------|----------------|---|---|--------------------------|
| HGC9 | M4 | 1.25 - 5.5 | 1.5-M4 - 5.5-M4 | 15 |
| HGC12 | M4 | 1.25 - 5.5 | 1.5-M4 - 5.5-M4 | 15 |
| HGC18 | M4 | 1.25 - 14 | 1.5-M4 - 5.5-M4 | 15 |
| HGC25 | M5 | 1.25 - 14 | 2-M5 - 14-M5 | 26 |
| HGC32 | M5 | 1.25 - 14 | 2-M5 - 14-M5 | 26 |
| HGC40 | M5 | 2 - 22 | 2-M5 - 22-M5 | 26 |
| HGC50 | M6 | 2 - 22 | 1.25-M6 - 22-M6 | 40 |
| HGC65 | M6 | 2 - 22 | 1.25-M6 - 22-M6 | 60 |
| HGC75 | M8 | 2 - 38 | 2-M8 - 38-M8 | 60 |
| HGC85 | M8 | 2 - 38 | 2-M8 - 38-M8 | 60 |
| HGC100 | M8 | 2 - 38 | 2-M8 - 38-M8 | 60 |
| HGC115 | M8 | 2 - 60 | 2-M8 - 60-M8 | 60 |
| HGC130 | M8 | 2 - 60 | 2-M8 - 60-M8 | 60 |
| HGC150 | M8 | 2 - 60 | 2-M8 - 60-M8 | 60 |
| HGC185 | M8 | 2 - 150 | 2-M10 - 150-M10 | 100 |
| HGC225 | M10 | 2 - 150 | 2-M10 - 150-M10 | 100 |
| HGC265 | M10 | 2 - 150 | 2-M10 - 150-M10 | 100 |
| HGC300 | M10 | 2 - 240 | 2-M12 - 240-M12 | 140 |
| HGC400 | M12 | 2 - 240 | 2-M12 - 240-M12 | 140 |
| HGC500 | M12 | 2 - 240 | 2-M12 - 240-M12 | 140 |
| HGC630 | M16 | 80 - 325 | 80-M16 - 325-M16 | 140 |
| HGC800 | M16 | 80 - 325 | 80-M16 - 325-M16 | 140 |



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Control Circuit

| Model | Terminal Screw | Applicable Wire Size (mm ²) | Ring Tongue Terminal (mm ²) | Screwing Torque (kgf.cm) |
|--------------|----------------|---|---|--------------------------|
| HGC9 - 100 | M3.5 | 1.25 - 2 | 1.25 - M3.5 - 2 - M.5 | 12 |
| HGC115 - 800 | | | | |

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Technical Information

Inching and Plugging Duty

• AC4 Utilization Category

| Category | Voltage | Ratio | Electrical Lifetime | HGC9 | HGC12 | HGC18 | HGC25 | HGC32 | HGC40 | HGC50 | HGC65 | HGC75 | HGC85 | HGC100 |
|----------|---------|----------------------|---------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Inching | 220 V | 10 % | 100,000 | 2.2 | 2.7 | 3.7 | 4 | 5.5 | 7.5 | 11 | 15 | 18.5 | 19 | 25 |
| | | | 500,000 | 1 | 1.5 | 2.7 | 3.7 | 4.5 | 5.5 | 7.5 | 11 | 15 | 15 | 15 |
| | | 50 % | 100,000 | 1 | 1.5 | 2.7 | 3.7 | 4.5 | 5.5 | 7.5 | 11 | 15 | 15 | 19 |
| | | | 500,000 | 0.5 | 0.75 | 1.1 | 1.5 | 2.2 | 3.7 | 3.7 | 5.5 | 7.5 | 7.5 | 9 |
| | | 100 % | 100,000 | 0.75 | 1.1 | 1.5 | 2.5 | 4.5 | 4.5 | 5.5 | 7.5 | 9 | 11 | 11 |
| | | | 500,000 | 0.3 | 0.5 | 0.75 | 1.1 | 1.8 | 2.7 | 3.7 | 4 | 4 | 5.5 | 5.5 |
| | 440 V | 10 % | 100,000 | 2.7 | 4 | 4 | 7.5 | 11 | 15 | 22 | 30 | 37 | 37 | 50 |
| | | | 500,000 | 1.5 | 2.2 | 3.7 | 7.5 | 9 | 11 | 15 | 22 | 30 | 30 | 37 |
| | | 50 % | 100,000 | 1.5 | 3.7 | 4 | 7.5 | 9 | 11 | 15 | 22 | 30 | 30 | 37 |
| | | | 500,000 | 0.75 | 1.5 | 2.2 | 3.7 | 4.5 | 5.5 | 7.5 | 11 | 15 | 15 | 18.5 |
| | | 100 % | 100,000 | 1.1 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 15 | 15 | 22 | 25 |
| | | | 500,000 | 0.5 | 1.1 | 1.5 | 2.2 | 3.7 | 3.7 | 5.5 | 7.5 | 7.5 | 11 | 13 |
| Plugging | 220 V | Plugging Brake 100 % | 100,000 | 0.75 | 0.75 | 1.5 | 2.2 | 2.5 | 3.7 | 5.5 | 7.5 | 9 | 9 | 11 |
| | | | 500,000 | 0.2 | 0.4 | 0.5 | 0.75 | 1.1 | 1.5 | 2.2 | 3 | 3.7 | 3.7 | 4.5 |
| | 440 V | 100 % | 100,000 | 0.75 | 1 | 2.2 | 3.7 | 4.5 | 4.5 | 7.5 | 11 | 18.5 | 18.5 | 22 |
| | | | 500,000 | 0.2 | 0.4 | 0.75 | 1.5 | 2.2 | 2.2 | 3.7 | 5.5 | 7.5 | 7.5 | 11 |

| Category | Voltage | Ratio | Electrical Lifetime | HGC115 | HGC130 | HGC150 | HGC185 | HGC225 | HGC265 | HGC300 | HGC400 | HGC500 | HGC630 | HGC800 |
|----------|---------|----------------------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Inching | 220 V | 10 % | 100,000 | 30 | 30 | 37 | 45 | 55 | 65 | 75 | 110 | 132 | 160 | 200 |
| | | | 500,000 | 15 | 22 | 25 | 30 | 37 | 45 | 50 | 65 | 70 | 75 | 132 |
| | | 50 % | 100,000 | 22 | 22 | 30 | 37 | 45 | 50 | 55 | 75 | 80 | 90 | 150 |
| | | | 500,000 | 9 | 9 | 11 | 15 | 19 | 22 | 25 | 30 | 32 | 37 | 45 |
| | | 100 % | 100,000 | 11 | 15 | 19 | 25 | 30 | 32 | 37 | 45 | 50 | 55 | 75 |
| | | | 500,000 | 5.5 | 7.5 | 9 | 11 | 15 | 17 | 22 | 25 | 30 | 37 | 45 |
| | 440 V | 10 % | 100,000 | 50 | 60 | 75 | 90 | 110 | 132 | 150 | 200 | 250 | 300 | 400 |
| | | | 500,000 | 37 | 45 | 55 | 75 | 90 | 110 | 125 | 132 | 140 | 150 | 190 |
| | | 50 % | 100,000 | 37 | 45 | 55 | 75 | 90 | 110 | 132 | 150 | 167 | 190 | 220 |
| | | | 500,000 | 18.5 | 22 | 30 | 37 | 37 | 42 | 50 | 75 | 80 | 90 | 110 |
| | | 100 % | 100,000 | 25 | 30 | 45 | 55 | 60 | 65 | 75 | 110 | 120 | 132 | 160 |
| | | | 500,000 | 13 | 15 | 22 | 25 | 30 | 32 | 37 | 55 | 63 | 75 | 90 |
| Plugging | 220 V | Plugging Brake 100 % | 100,000 | 11 | 15 | 19 | 22 | 25 | 30 | 37 | 45 | 50 | 55 | 75 |
| | | | 500,000 | 4.5 | 5.5 | 7.5 | 11 | 13 | 15 | 18.5 | 22 | 25 | 30 | 37 |
| | 440 V | 100 % | 100,000 | 22 | 30 | 37 | 45 | 45 | 49 | 55 | 75 | 90 | 110 | 150 |
| | | | 500,000 | 11 | 15 | 19 | 22 | 25 | 26 | 30 | 37 | 40 | 45 | 75 |

※ The inching limit of making and breaking frequency is below 10 continuous operation (1 sec/1 cycle)

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$$\text{Ratio of Inching Operation (\%)} = \frac{\text{Inching Operations}}{\text{Standard Operations} + \text{Inching Operations}} \times 100$$

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Rating Based on UL

| Category | | HGC9 | HGC12 | HGC18 | HGC25 | HGC32 | HGC40 | HGC50 | HGC65 | HGC75 | HGC85 | HGC100 | |
|---|----------------|------|---------|--------|--------|-------|-------|--------|-------|-------|-------|--------|-------|
| Continuous Current (Ambient Temperature 40 °C) | | A | 21 | 21 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 105 | 125 |
| Single Phase | 1P/100 - 120 V | hp/A | 0.5/9.8 | 1/16 | 1.5/16 | 2/20 | 2/24 | 3/34 | 5/56 | 5/56 | - | - | - |
| | 1P/220 - 240 V | | 1/8 | 2/12 | 3/17 | 3/17 | 5/28 | 7.5/40 | 10/50 | 10/50 | - | - | - |
| Three Phases | 3P/220 - 240 V | hp/A | 2/6.8 | 3/9.6 | 5/15.2 | 10/28 | 10/28 | 15/42 | 20/54 | 20/54 | 25/68 | 30/80 | 30/80 |
| | 3P/440 - 480 V | | 5/7.6 | 7.5/11 | 10/14 | 20/27 | 25/34 | 30/40 | 40/52 | 40/52 | 60/77 | 60/77 | 60/77 |
| | 3P/550 - 600 V | | 5/6.1 | 10/11 | 15/21 | 15/21 | 20/22 | 30/32 | 30/42 | 40/52 | 50/52 | 50/52 | 75/77 |
| NEMA Size | | | 00 | 00 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 3 | 3 |

| Category | | HGC115 | HGC130 | HGC150 | HGC185 | HGC225 | HGC265 | HGC300 | HGC400 | HGC500 | HGC630 | HGC800 | |
|---|----------------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Continuous Current (Ambient Temperature 40 °C) | | A | 160 | 180 | 210 | 230 | 260 | 330 | 350 | 450 | 550 | 750 | 900 |
| Single Phase | 1P/100 - 120 V | hp/A | - | - | - | - | - | - | - | - | - | - | |
| | 1P/220 - 240 V | | - | - | - | - | - | - | - | - | - | - | |
| Three Phases | 3P/220 - 240 V | hp/A | 40/104 | 40/104 | 50/130 | 60/154 | 75/192 | 100/248 | 100/248 | 150/360 | 150/360 | 250/480 | 300/720 |
| | 3P/440 - 480 V | | 75/96 | 75/96 | 100/124 | 125/156 | 150/180 | 200/240 | 250/302 | 300/361 | 300/361 | 500/477 | 600/708 |
| | 3P/550 - 600 V | | 100/99 | 100/99 | 125/125 | 150/144 | 200/192 | 250/242 | 250/242 | 300/289 | 350/336 | 500/382 | 600/578 |
| NEMA Size | | | 3 | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 6 | 7 |

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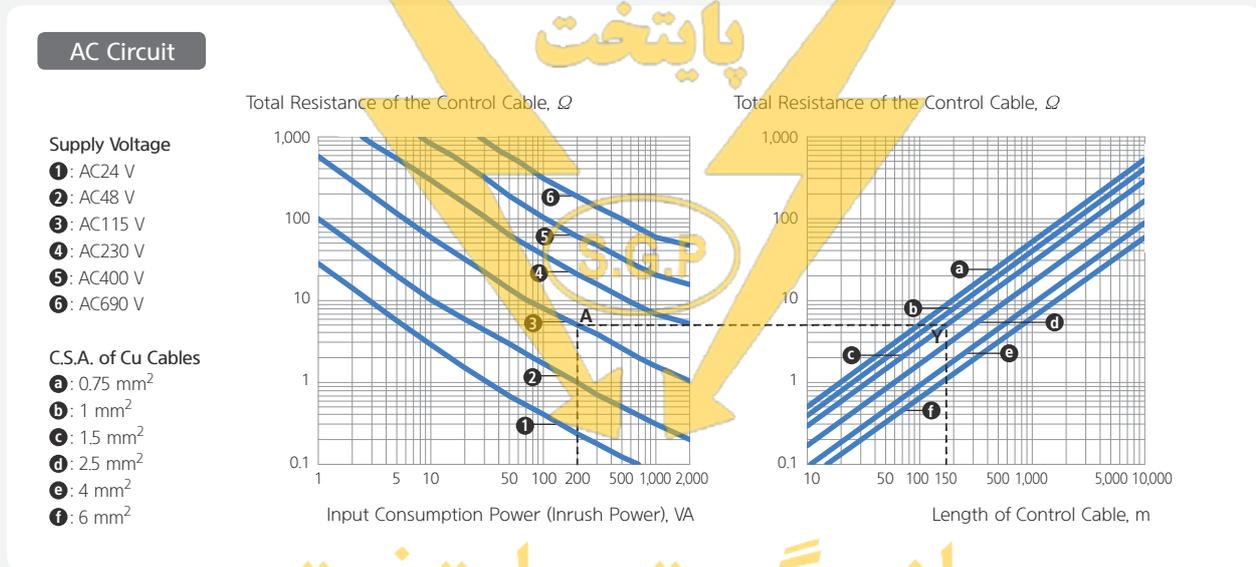
Effect of Cable Length on Magnetic Contactor

Voltage Drop by Inrush Current and Resistive Circuit

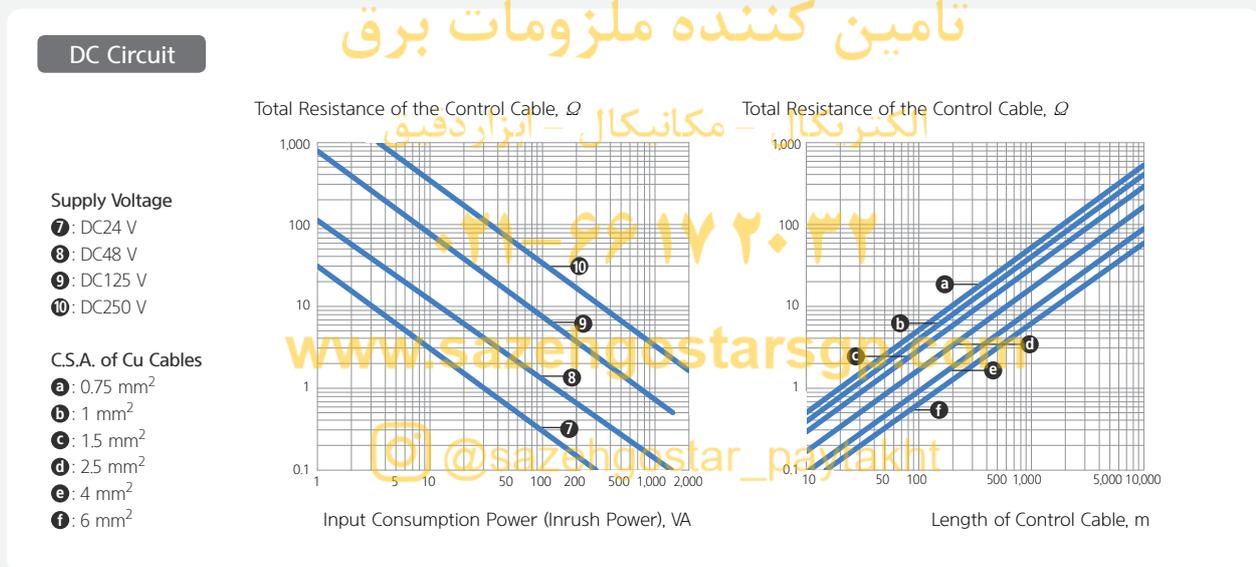
Voltage drop occurs on control circuit when inrush current caused by resistance of conductor is supplied to coil. Excessive voltage drop on power control cable (for both AC and DC) might cause coil to burn. Therefore, the length of connection cable should be decided considering input power, supply voltage, and cross sectional area of conducting wire.

Selection for Conductor C.S.A. According to Inrush Power

These graphs show maximum 5 % line voltage drop.



※ Example: The maximum length of conductor required when using 1.5 mm² Cu control cable, HGC 40 A, 115 V with inrush power 200 VA is 150 m.



Maximum Cable Distance Calculation

$$L = \frac{U^2}{SA} \cdot s \cdot K$$

L: Distance between conductors and controlling equipment (length of cable)
U: Power supply in V

SA: Apparent inrush power for coil in VA
s: Conductor C.S.A. in mm²
K: Factors given in following table

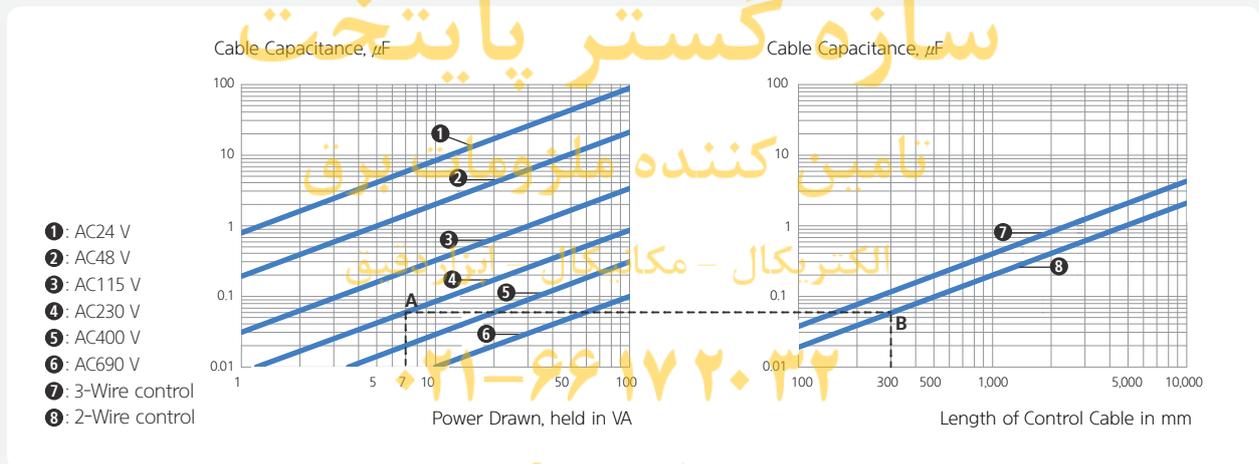
| | | | | | | |
|-----------|--|------|-----|-----|-----|------|
| AC Supply | SA (VA) | 20 | 40 | 100 | 150 | 200 |
| | K | 1.38 | 1.5 | 1.8 | 2 | 2.15 |
| DC Supply | Irrespective of the apparent inrush power SA, expressed in W k = 1.38 | | | | | |

Trip Failure Due to Cable Capacitance (AC)

Control cable's capacitance might cause trip failure when the control circuit of contactors is opened.

This phenomenon can be worsened by the following conditions, so when deciding the length of conducting cable, the following should be considered.

- Too long distance between coil terminal and power source or between coil terminal and contactors.
- Too high of control circuit voltage
- Too low of coil power consumption
- Too low of drop-out voltage



※ Example: The maximum distance for control cable of HGC 12 contact which is operated by 230 V and 2-wire control with hold in power of 7 VA, is 300 m.

Maximum Cable Distance Calculation According to Cable Capacitance

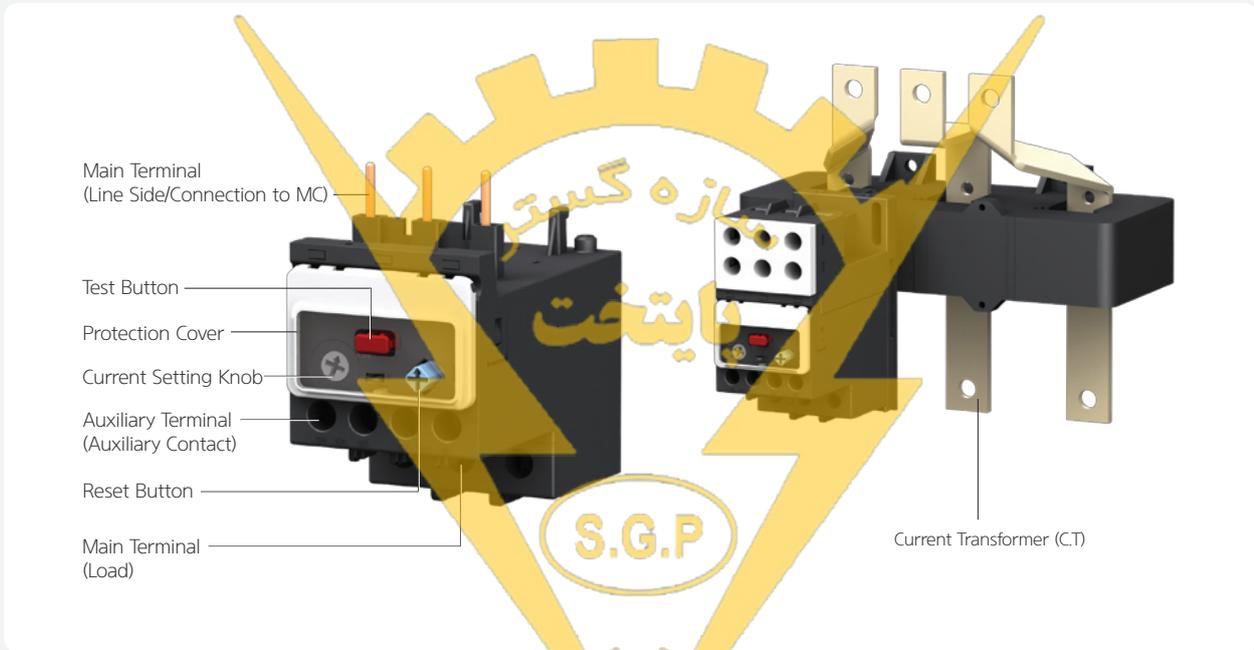
$$L = 455 \cdot \frac{S}{U^2 \cdot Co}$$

L: Distance between contact and control equipment m (cable length)
S: Apparent sealed power VA

U: Control voltage V
Co: Line capacitance capacity for cable

Technical Information

Structure and Features of TOR



Test Button

- When test button is pushed, the contact from MC is opened which makes the motor stop. This button is also used for emergency stop.
- If the test button is pulled up, the status of TOR becomes trips indicator; trip indicator comes up, NC contact opens, and NO contact closes.

Reset Button

- A (Automatic) Position: Automatic reset
- H (Manual) Position: Manual reset



Protection Cover

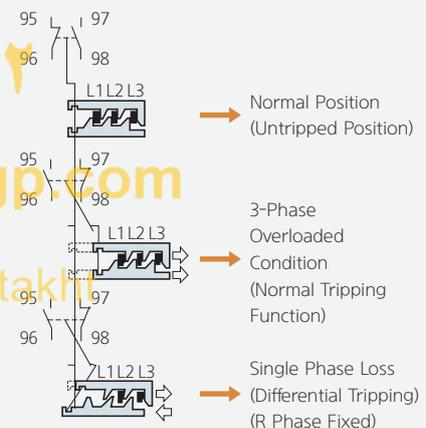
- Unintended change of set current or pushing reset button can be prevented by the protection cover.
- When changing TOR settings, raise the cover and change the settings.

Current Setting Knob

- Three steps of setting current can be adjusted by "+" or "-" driver.

Phase Loss Protection: Differential Tripping Mechanism

- Differential tripping mechanism makes trip faster in the case of single phase loss than all three phase overloaded condition. As shown in the figure, when R phase in loss, the bimetal of R phase remains, so it fixes up the lower slide. At the same time, the other bimetals of S and T phase are bent, then they move the upper slide. It is also the same for S and T phase in loss.



- L1/L2/L3: LINE3 Phase (R. S. T Phase)
 - 95/96/97/98: TOR Auxiliary Contact Terminal

Selection Method

Short Starting Time Motors

- For the normal starting time motors within a few seconds relays can be selected by the table of page 56. The full load current (FLC) of the motor must be in the setting range of the thermal overload relay. The starting time of high-inertia motor is an important factor at the selection of thermal overload relays
- The tripping time of the motors, whose starting current is 6-7 times of the rated current, can be obtained from the HGT tripping curves. This time should be longer than about 125 % of the motor starting time.

Long Starting Time Motors

- If the starting time of the motor is longer than the tripping time of HGT, the current transformer type is applicable.
- The current transformer type relays include the non-tripping features during the motor starting time. The rated current can be decreased by looping primary cable several times on the transformer according to the following table.

Current Configuration Ratio According to Loop Turns (Example: 130 A)

| Primary Loop Turns | Current Range (A) | Current Ratio |
|--------------------|-------------------|---------------|
| 1 | 78 - 130 | 130/5 |
| 2 | 39 - 65 | 65/5 |
| 3 | 26 - 26.7 | 26.7/5 |
| 4 | 19.5 - 43.3 | 43.3/5 |
| 5 | 15.6 - 26 | 26/5 |
| 6 | 13 - 21.7 | 21.7/5 |
| 7 | 11.14 - 18.5 | 18.5/5 |
| 8 | 9.75 - 16.25 | 16.25/5 |

$$\text{Setting Current (A)} = \frac{\text{Rated Current of Motor}}{\text{Current Ratio}}$$

- The second rated current of current transformer is 5 A, the overload relay is able to control the current between 3 A and 5 A.
- The corresponding setting value for the relay can be calculated by using the following formula.

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Making and Breaking Current of Auxilliary Contacts

| Class | AC15 ¹⁾ | | Class | DC13 ²⁾ | |
|-------|--------------------------------|---------------------------------|-------|--------------------|--------------------------------|
| | Aux. Contact 95 - 96 Ie (A) | Alarm Contact 97 - 98 Ie (A) | | Voltage (V) | Aux. Contact 95 - 96 Ie (A) |
| 110 | 2 | 1.2 | 24 | 1 | 1 |
| 220 | 1.5 | 1 | 110 | 0.4 | 0.4 |
| 500 | 1 | 0.5 | 220 | 0.15 | 0.15 |
| 660 | 0.5 | 0.3 | 440 | 0.07 | 0.07 |

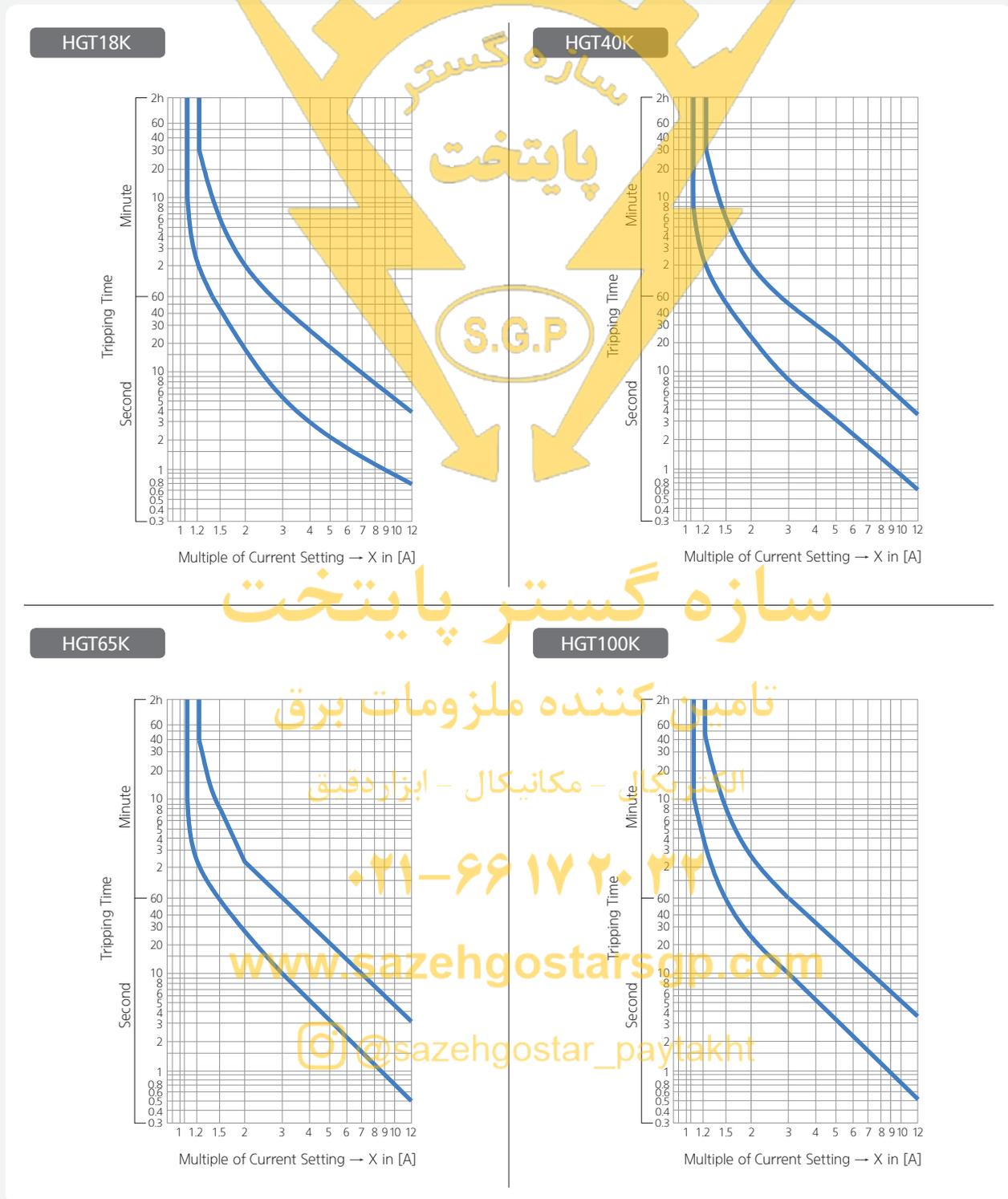
※ 1) AC15: Making/Breaking Current = Ie × 10

2) DC13: Making/Breaking Current = Ie × 1.1

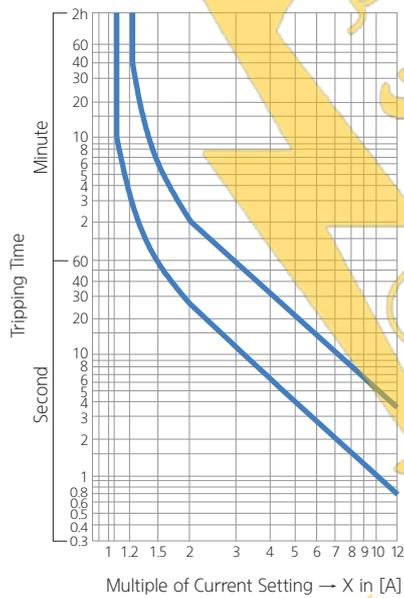
Technical Information

Characteristic Curve of Thermal Overload Relay

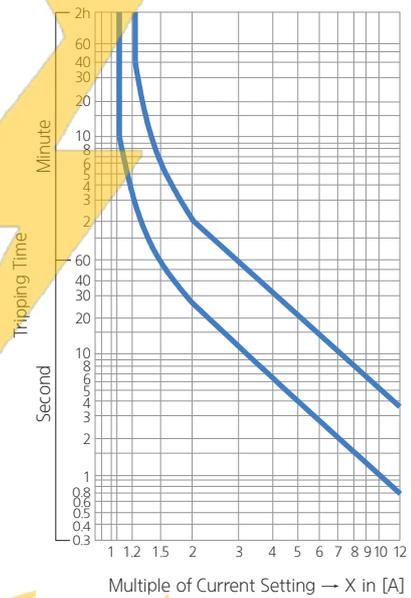
- Tripping curve of 3 phase overloaded condition shows the average tripping time based on the cold starting at + 20 °C ambient temperature. (Tripping time of hot starting is 20 - 40 % of cold starting)
- Average tripping time of single phase overloaded condition is 40 - 60 % of three phase overload.



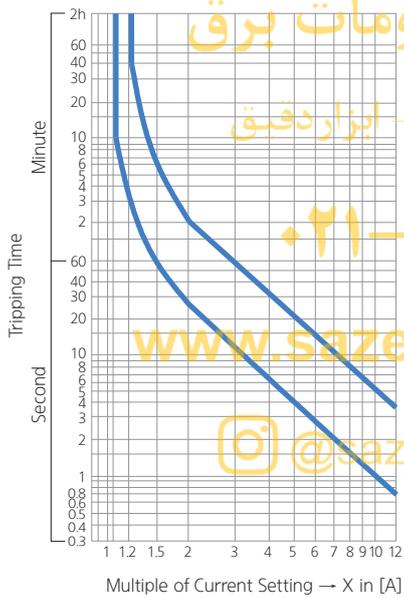
HGT150K



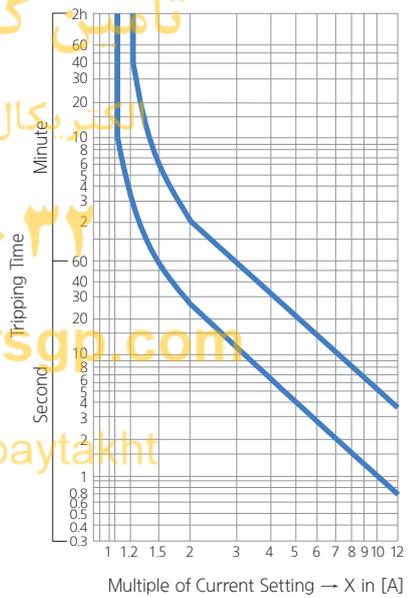
HGT265K



HGT400K



HGT800K



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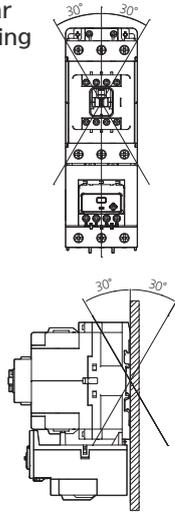
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Technical Information

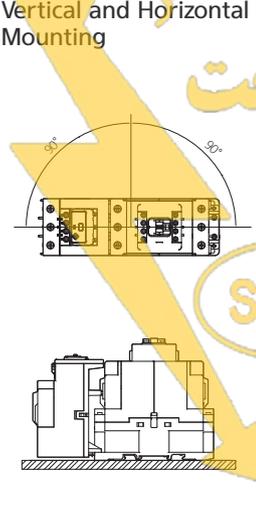
Cautions for Installing

- Please install the contactor in a place free from moisture and vibration.
- It is recommended to install the contactor in a vertical plane, but +30° slant is acceptable as standard installation.
- Lateral or horizontal installation could decrease the mechanical lifetime and electrical performance of contactor compared with standard installation.
- The contactor may get damaged by arc if the insulation distance stated in the below table is not followed.

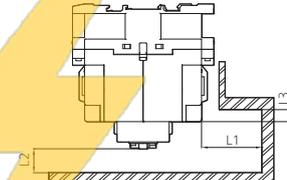
Regular Mounting



Vertical and Horizontal Mounting



Insulation Distance



(Unit: mm)

| Distance | Model | Above HGC75 | | | | |
|----------|-------|-------------|--------------|--------------|--------------|--------------|
| | | HGC75 - 100 | HGC115 - 150 | HGC185 - 265 | HGC300 - 500 | HGC630 - 800 |
| L1 | | 30 | 30 | 80 | 80 | 80 |
| L2 | | 5 | 15 | 15 | 15 | 20 |
| L3 | | 6 | 11 | 32 | 32 | 40 |

Precautions

⚠ Safety Precautions

- All procedures must be conducted only by qualified persons. Otherwise, electrical shock, personal injury, or a fire could occur.
- The product shall not be stored or operated in abnormal environment, such as, but not limited to, high temperature, high humidity, over vibration, dust, and corrosive gas.
- All care must be taken to prevent dust, moisture, and foreign objects from entering the product.

⚠ Transportation and Storage

- Do not open the package.
- Do not leave the products on the ground. Place it on a table or similar.
- Do not store in high temperature, high humidity, or corrosive gas areas.

⚠ Check Point Before Operation

- Do not operate before setting and adjustment.

⚠ Precautions for Installation, Operation, and Maintenance

- The product, bolt tightness, assembled status, and operating condition shall be checked visually and electrically from time to time. If any damage occurs, the product or parts must be replaced immediately.
- Rated current, rated voltage, load capacity, frequency, but not limited to, of the product must meet the load.
- Power must be OFF before wiring work.
- Supply voltage should be applied with right rating of the product. Otherwise, electrical shock, personal injury, or a fire could occur.
- Cable and terminal must be suitable for the product and the load.
- All wirings, especially for main terminal and coil terminal, shall be tightened by proper torque in correct manner.
- Routine check for the connection of circuit is needed.
- The function of product and contacts shall be checked occasionally and if defect is found, proper replacement is needed.
- Lubrication is prohibited on the product, parts, and wirings.
- Proper tool should be used for maintenance.

Contact Arrangement

Magnetic Contactor

| Model | Contacts | | Contact Arrangement | |
|--|-----------|-----------|---------------------|--------------|
| | Main | Auxiliary | AC | DC |
| HGC9 HGC12 HGC18 | 2NO + 2NC | - | | Same as left |
| HGC25 HGC32 HGC40 | 2NO + 2NC | 2NO + 2NC | | Same as left |
| HGC50 HGC65 HGC75 | 2NO + 2NC | - | | |
| HGC85 HGC100 | 2NO + 2NC | 2NO + 2NC | | |
| HGC115 HGC130 HGC150 | 2NO + 2NC | - | | Same as left |
| HGC225 HGC265 HGC300 HGC400 HGC500 HGC630 HGC800 | 2NO + 2NC | 2NO + 2NC | | Same as left |

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Control Relay

| Model | Contacts | Contact Arrangement |
|-------|-----------|---------------------|
| HGR04 | 4NC | |
| HGR13 | 1NO + 3NC | |
| HGR22 | 2NO + 2NC | |
| HGR31 | 3NO + 1NC | |
| HGR40 | 4NO | |

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Order Information

Magnetic Contactors



- 1 Model
- 2 Type Based on Rating
- 3 Auxilliary Contact Arrangement
- 4 Application
- 5 Terminal Type
- 6 Coil Voltage Type
- 7 Coil Voltage

| 2 Type Based on Rating | | |
|--------------------------|---------------|----------------|
| Basic Magnetic Contactor | | |
| Code | Rated Current | Rated Capacity |
| AC3/AC400 V | | |
| 9 | 9 A | 4 kW |
| 12 | 12 A | 5.5 kW |
| 18 | 18 A | 7.5 kW |
| 25 | 25 A | 11 kW |
| 32 | 32 A | 15 kW |
| 40 | 40 A | 18.5 kW |
| 50 | 50 A | 22 kW |
| 65 | 65 A | 30 kW |
| 75 | 75 A | 37 kW |
| 85 | 85 A | 45 kW |
| 100 | 100 A | 55 kW |
| 115 | 115 A | 60 kW |
| 130 | 130 A | 65 kW |
| 150 | 150 A | 75 kW |
| 185 | 185 A | 90 kW |
| 225 | 225 A | 132 kW |
| 265 | 265 A | 147 kW |
| 300 | 300 A | 160 kW |
| 400 | 400 A | 220 kW |
| 500 | 500 A | 250 kW |
| 630 | 630 A | 330 kW |
| 800 | 800 A | 440 kW |

| 2 Type Based on Rating | | |
|-------------------------------|---------------|--------------------|
| Capacitor Switching Contactor | | |
| Code | Rated Current | Capacitor Capacity |
| (AC440 V) | | |
| 9C | 9 A | 9.7 kVAR |
| 12C | 12 A | 12.5 kVAR |
| 18C | 18 A | 16.7 kVAR |
| 25C | 25 A | 18 kVAR |
| 32C | 32 A | 30 kVAR |
| 40C | 40 A | 33.3 kVAR |
| 50C | 50 A | 4 5kVAR |
| 65C | 65 A | 46 kVAR |
| 75C | 75 A | 54 kVAR |
| 85C | 85 A | 60 kVAR |
| 100C | 100 A | 80 kVAR |

| 3 Auxilliary Contact Arrangement | |
|----------------------------------|----------------------------|
| Standard Magnetic Contactor | |
| 11 | 1NO + 1NC |
| 21 | 2NO + 1NC |
| 22 | 2NO + 2NC |
| Capacitor Switching Contactor | |
| 23 | 2NO + 3NC |
| 32 | 3NO + 2NC |
| 4 Application | |
| N | Normal |
| 5 Terminal Type | |
| Standard Magnetic Contactor | |
| R | No Terminal Cover |
| S | Terminal Cover (9 - 100 A) |
| C | Lug terminal (50 - 100 A) |
| Capacitor Switching Contactor | |
| S | Terminal Cover |

| 6 Coil Voltage Type | |
|-----------------------------|---------------------|
| Standard Magnetic Contactor | |
| X | AC 50Hz (9 - 100 A) |
| A | AC 60Hz (9 - 100 A) |
| D | DC (9 - 100 A) |
| F | AC/DC |
| Capacitor Switching | |
| X | AC 50 Hz |
| A | AC 60 Hz |
| 7 Coil Voltage | |
| 24 - 440 V | |

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※ When ordering, please refer to each type's page for details.

Thermal Overload Relays



2 Applicable Contactor Rating

| Code | Applicable Contactor |
|------|----------------------|
| 18 | HGC9 - 18 |
| 40 | HGC25 - 40 |
| 65 | HGC50, 65 |
| 100 | HGC75 - 100 |
| 150 | HGC115 - 150 |
| 265 | HGC185 - 265 |
| 500 | HGC300 - 500 |
| 800 | HGC630 - 800 |

3 Number of Terminal

| | |
|---|------------|
| K | 3 elements |
| H | 2 elements |

4 Characteristics Class (Feature Curve)

| | |
|---|------|
| A | 10 A |
| B | 10 |
| C | 20 |

※ When ordering, please refer to each type's page for details.

5 Setting Current

| Code | Setting Current |
|------|-----------------|
| OP18 | 0.12 - 0.18 A |
| OP26 | 0.18 - 0.26 A |
| OP35 | 0.25 - 0.35 A |
| OP50 | 0.34 - 0.5 A |
| OP70 | 0.5 - 0.7 A |
| OP90 | 0.6 - 0.9 A |
| 1P20 | 0.8 - 1.2 A |
| 1P60 | 1.1 - 1.6 A |
| 2P10 | 1.5 - 2.1 A |
| 3 | 2 - 3 A |
| 4P20 | 2.8 - 4.2 A |
| 5 | 3 - 5 A |
| 6 | 4 - 6 A |
| 8 | 5.6 - 8 A |
| 9 | 6 - 9 A |
| 10 | 7 - 10 A |
| 12 | 8 - 12 A |
| 18 | 12 - 18 A |
| 22 | 15 - 22 A |
| 25 | 17 - 25 A |

5 Setting Current

| Code | Setting Current |
|------|-----------------|
| 32 | 22 - 32 A |
| 40 | 28 - 40 A |
| 50 | 34 - 50 A |
| 65 | 45 - 65 A |
| 75 | 52 - 75 A |
| 80 | 48 - 80 A |
| 85 | 59 - 85 A |
| 100 | 70 - 100 A |
| 115 | 69 - 115 A |
| 130 | 78 - 130 A |
| 150 | 90 - 150 A |
| 185 | 111 - 185 A |
| 225 | 135 - 225 A |
| 265 | 159 - 265 A |
| 300 | 180 - 300 A |
| 400 | 240 - 400 A |
| 500 | 300 - 500 A |
| 630 | 378 - 630 A |
| 800 | 480 - 800 A |

6 Terminal Type

| | |
|---|---------------------------|
| R | No Terminal Cover |
| S | Terminal Cover |
| C | Lug Terminal (50 - 100 A) |

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Order Information

Auxiliary Relay



| 2 Auxiliary Contact Arrangement | |
|---------------------------------|-----------|
| 04 | 4NC |
| 13 | 1NO + 3NC |
| 22 | 2NO + 2NC |
| 31 | 3NO + 1NC |
| 40 | 4NO |

| 3 Control Type | | 4 Terminal Type | |
|----------------|-----------------------|-----------------|-------------------|
| X | AC | R | No Terminal Cover |
| T | DC (Solenoid) | S | Terminal Cover |
| P | DC (Permanent Magnet) | | |

| 5 Coil Voltage Type | |
|---------------------|----------|
| X | AC 50 Hz |
| A | AC 60 Hz |
| D | DC |

| 6 Coil Voltage | |
|----------------|--|
| 24 - 440 V | |

Accessories

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| 2 Accessories | |
|---------------|---------------------------------|
| TB | Auxiliary Contact Block (Front) |
| SB | Auxiliary Contact Block (Side) |
| IU | Mechanical Interlock Block |
| LB | Mechanical Latching Block |
| RC | Surge Absorber |
| CD | Clamping Diode |
| ET | Timer |
| CU | Capacitor Switching Unit |

3 Rating: Please refer to each accessories' page for details.

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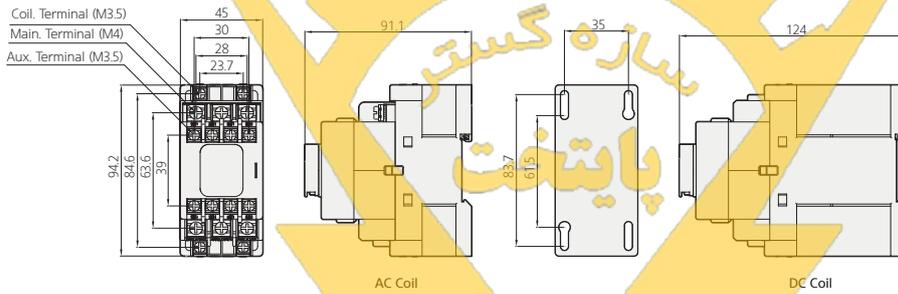
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Dimensions

Magnetic Contactor

(Unit: mm)

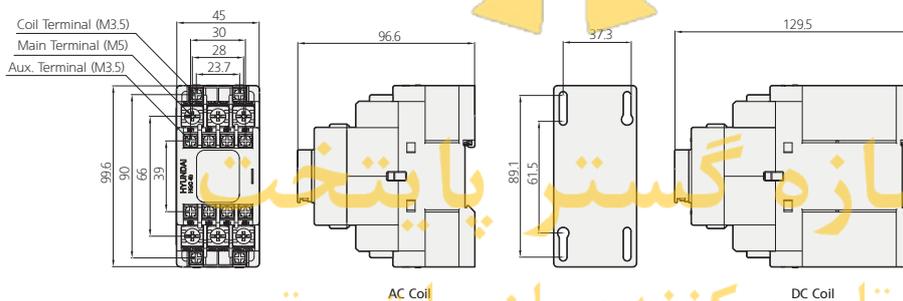
HGC9 / HGC12 / HGC18



| Accessories | A (mm) |
|-------------------------|--------|
| Aux. Contact HGCTB | 35 |
| Latching Block HGCLB | 42.5 |
| Timer HGCET | 39 |

※ () is for DC.

HGC25 / HGC32 / HGC40

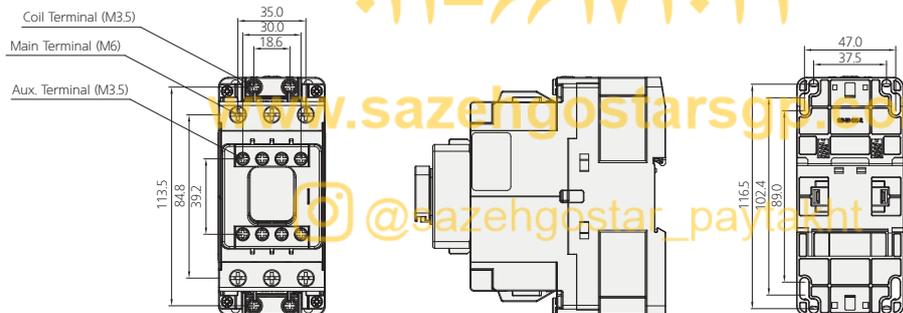


| Accessories | A (mm) |
|-------------------------|--------|
| Aux. Contact HGCTB | 35 |
| Latching Block HGCLB | 42.5 |
| Timer HGCET | 39 |

※ () is for DC.

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HGC50 / HGC65 (AC/DC)



| Accessories | A (mm) |
|-------------------------|--------|
| Aux. Contact HGCTB | 35 |
| Latching Block HGCLB | 42.5 |
| Timer HGCET | 39 |

※ () is for DC.

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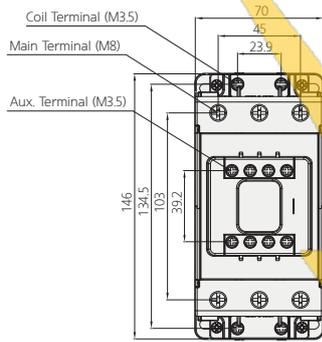
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Dimensions

Magnetic Contactor

(Unit: mm)

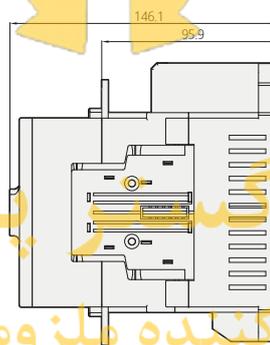
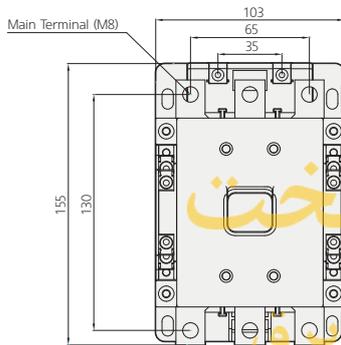
HGC75 / HGC85 / HGC100 (AC/DC)



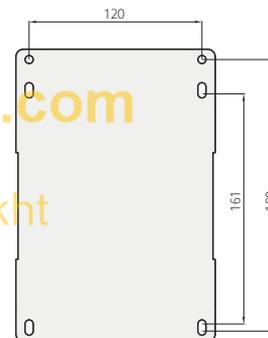
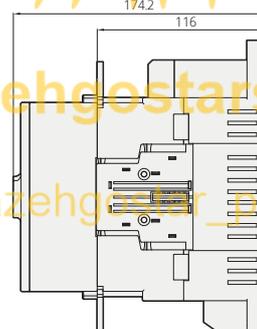
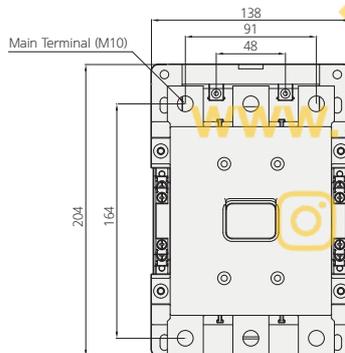
| Accessories | A (mm) |
|-------------------------|--------|
| Aux. Contact HGCTB | 35 |
| Latching Block HGCLB | 42.5 |
| Timer HGCET | 39 |

※ () is for DC.

HGC115 / HGC130 / HGC150



HGC185 / HGC225 / HGC265



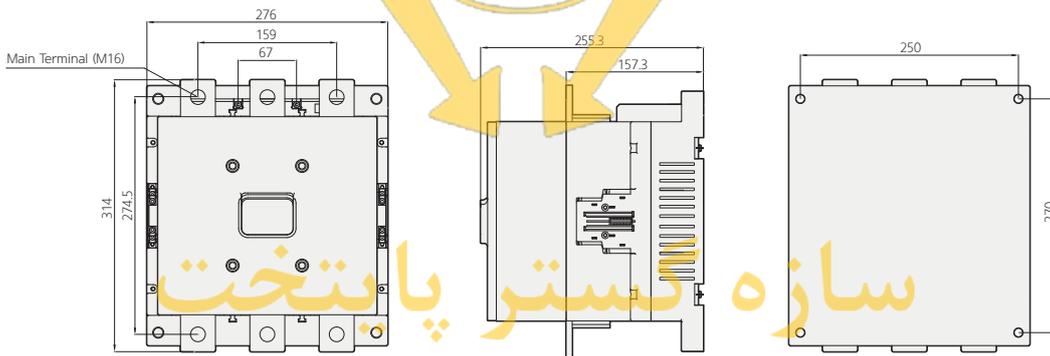
Magnetic Contactor

(Unit: mm)

HGC300 / HGC400 / HGC500



HGC630 / HGC800



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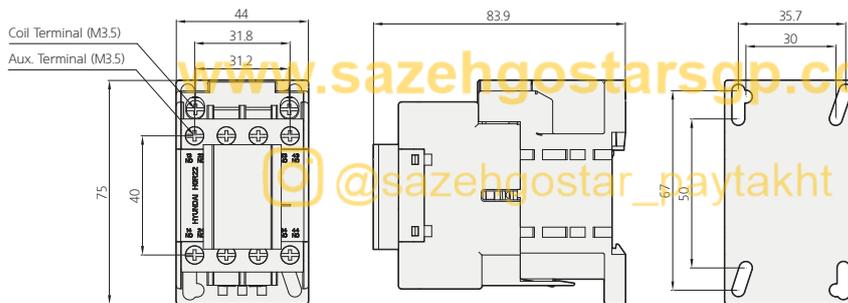
Control Relay

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(Unit: mm)

HGR (AC)

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| Accessories | A (mm) |
|-------------------------|--------|
| Aux. Contact HGCTB | 35 |
| Latching Block HGCLB | 42.5 |
| Timer HGCET | 39 |

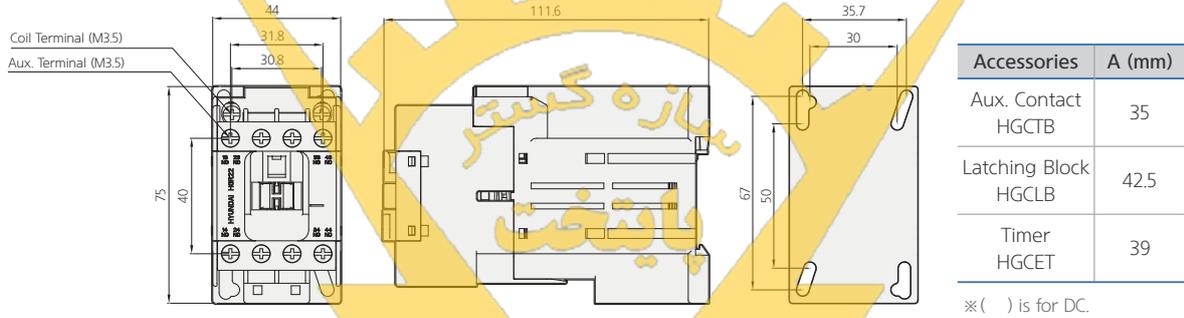
※ () is for DC.

Dimensions

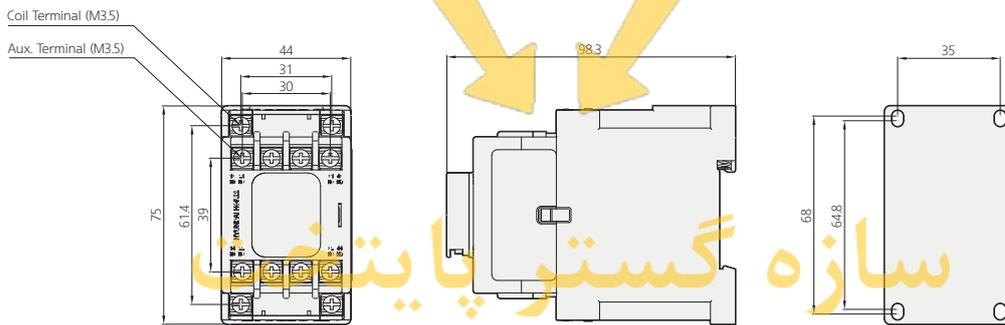
Control Relay

(Unit: mm)

HGR (DC)



HGR-P (Permanent Magnet)

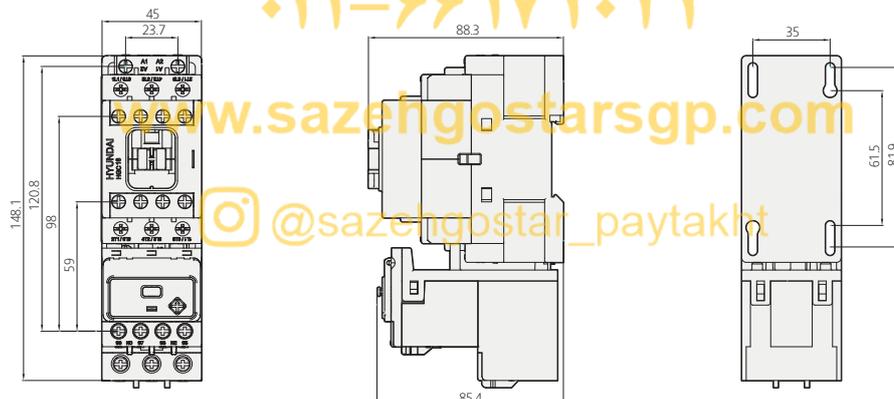


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Magnetic Switch (Magnetic Contactor + TOR)

(Unit: mm)

HGC9 / HGC12 / HGC18 + HGT18



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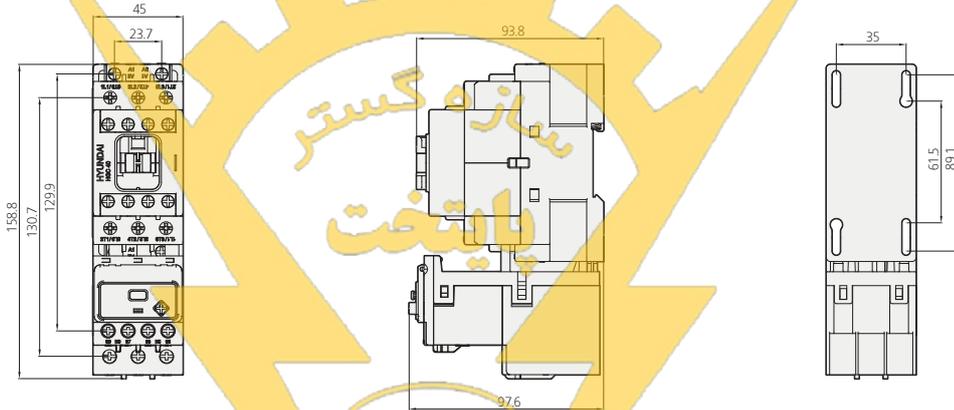
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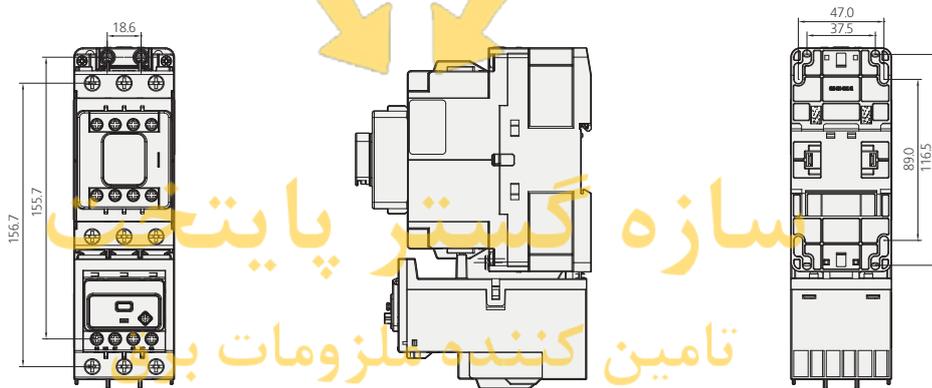
Magnetic Switch (Magnetic Contactor + TOR)

(Unit: mm)

HGC25 / HGC32 / HGC40 + HGT40

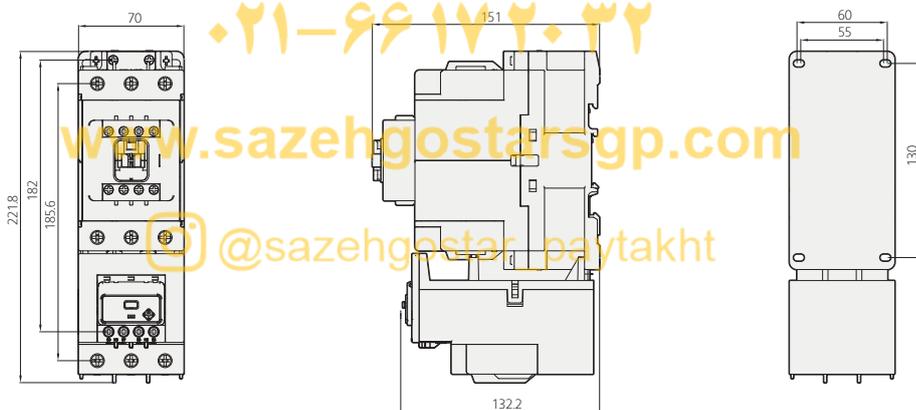


HGC50 / HGC65 + HGT65



الکتريکال - مکانیکال - ابزار دقیق

HGC75 / HGC85 / HGC100 + HGT100

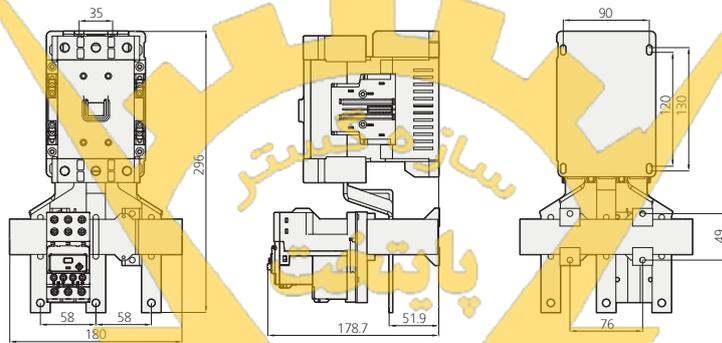


Dimensions

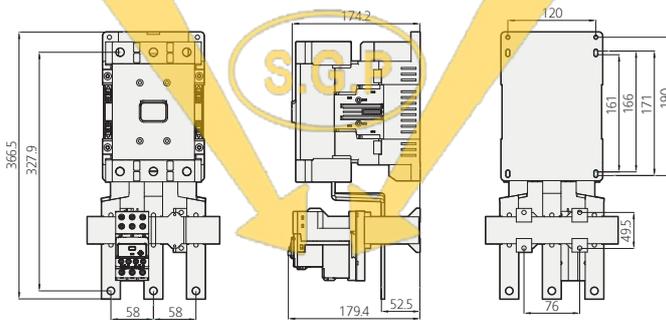
Magnetic Switch (Magnetic Contactor + TOR)

(Unit: mm)

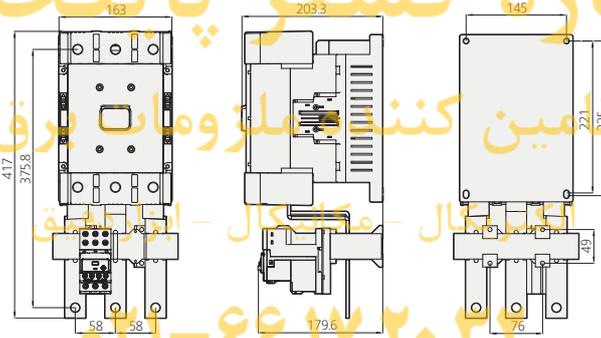
HGC115 / HGC130 / HGC150 + HGT150



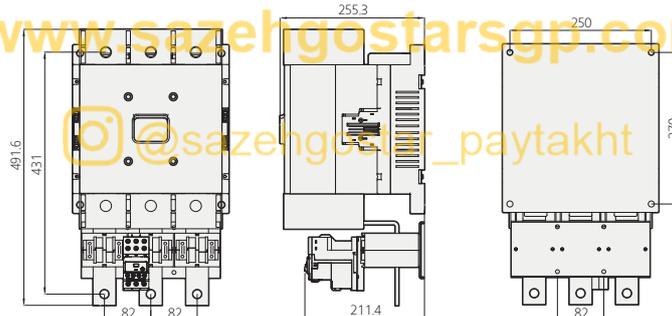
HGC185 / HGC225 / HGC265 + HGT265



HGC300 / HGC400 / HGC500 + HGT500



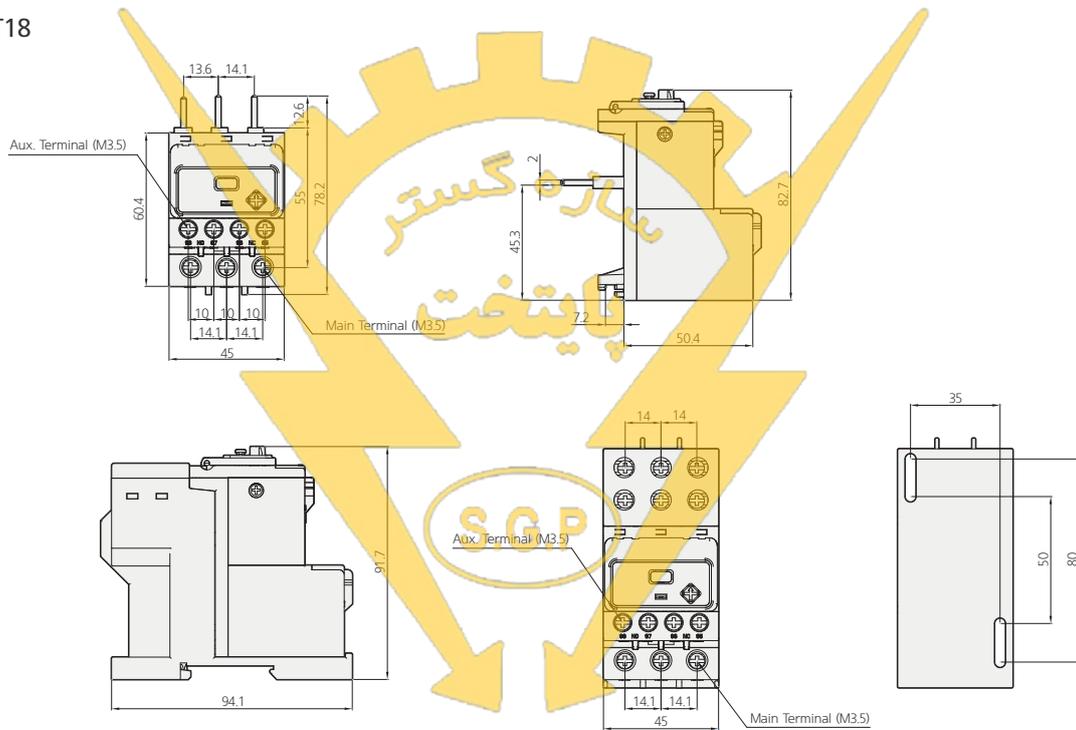
HGC630 / HGC800 + HGT800 (630, 800 A)



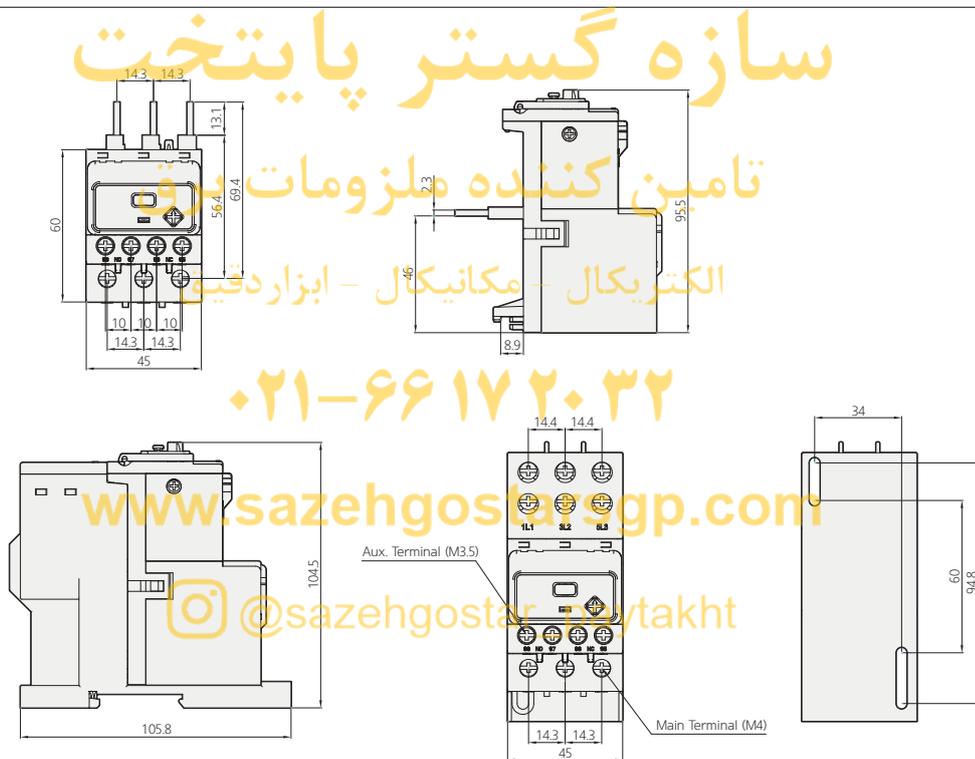
Thermal Overload Relay

(Unit: mm)

HGT18



HGT40

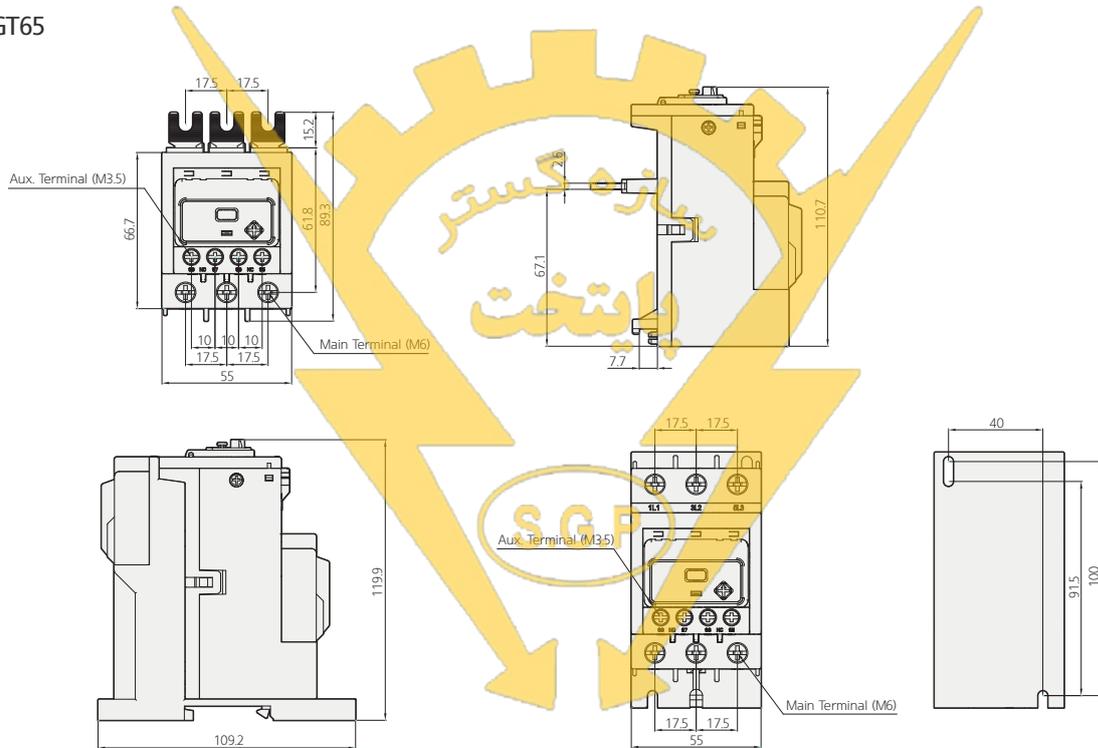


Dimensions

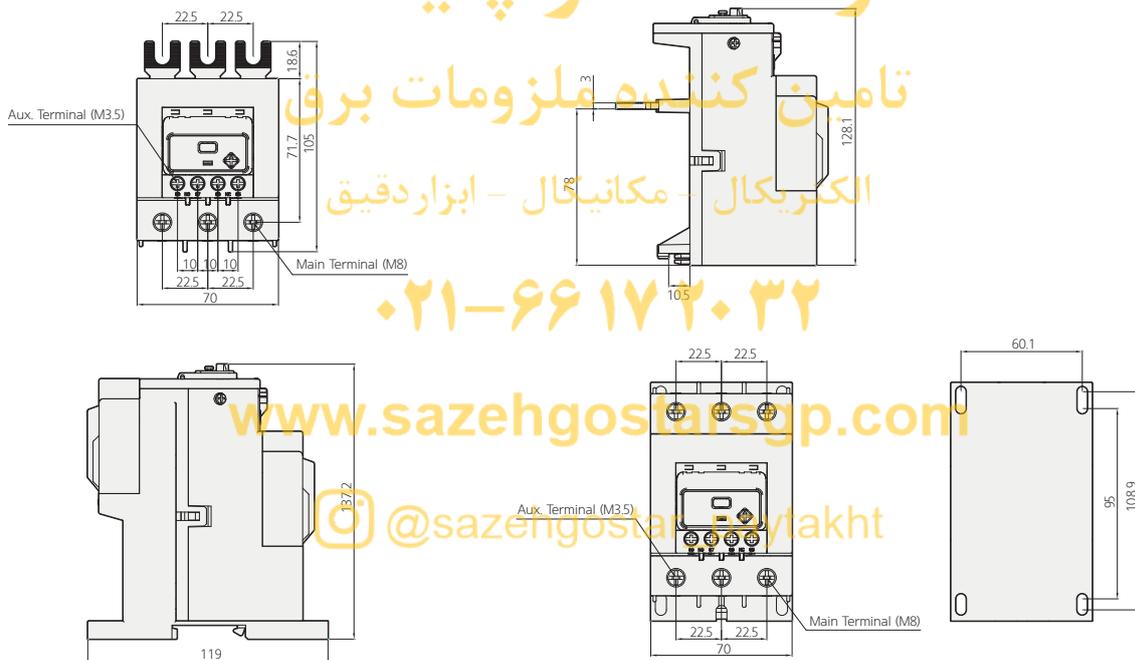
Thermal Overload Relay

(Unit: mm)

HGT65

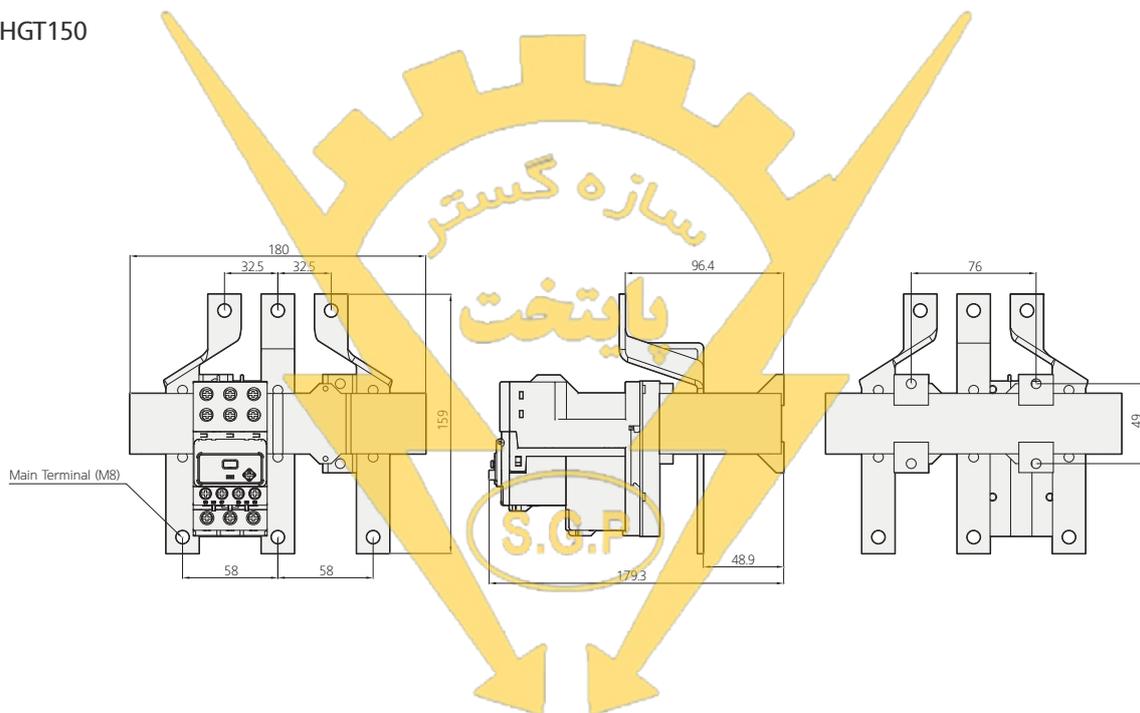


HGT100



(Unit: mm)

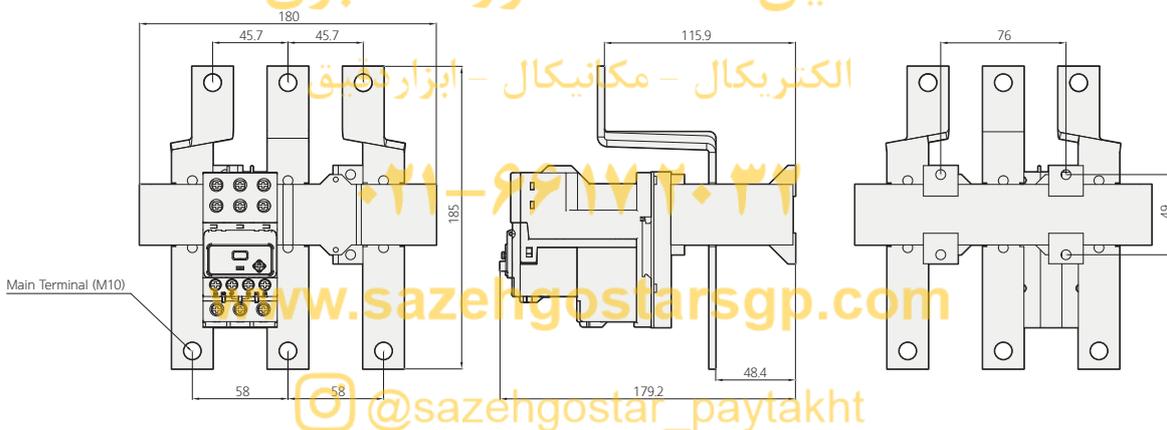
HGT150



HGT265

سازه گستر پایتخت

تامین کننده ملزومات برق

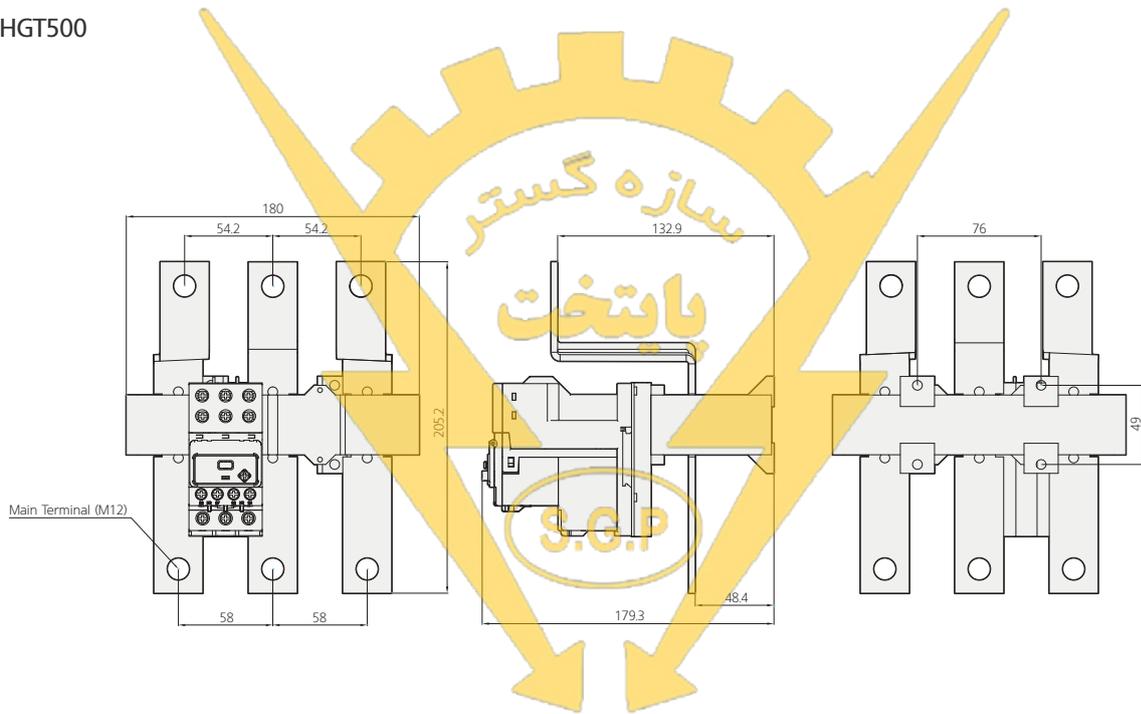


Dimensions

Thermal Overload Relay

(Unit: mm)

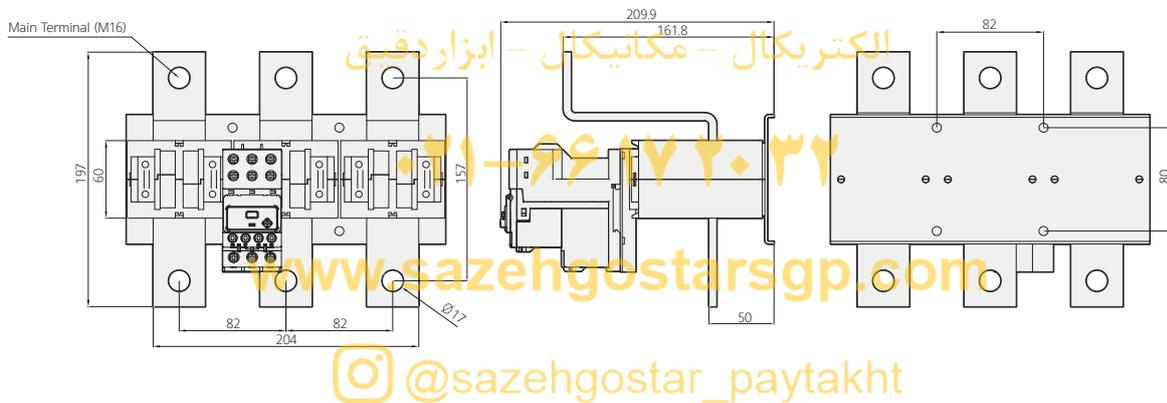
HGT500



HGT800

سازه گستر پایتخت

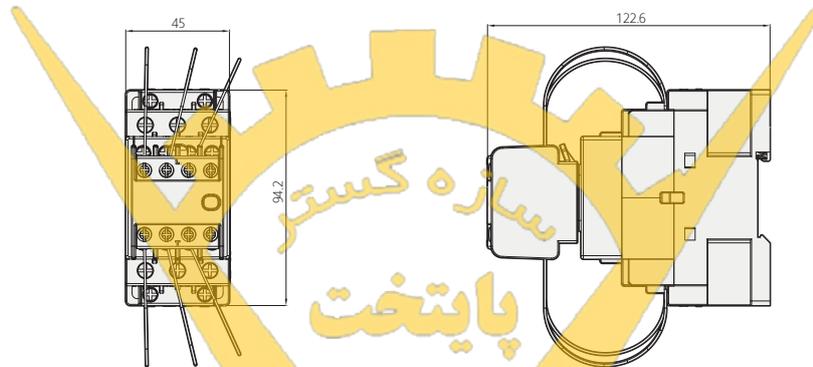
تامین کننده ملزومات برق



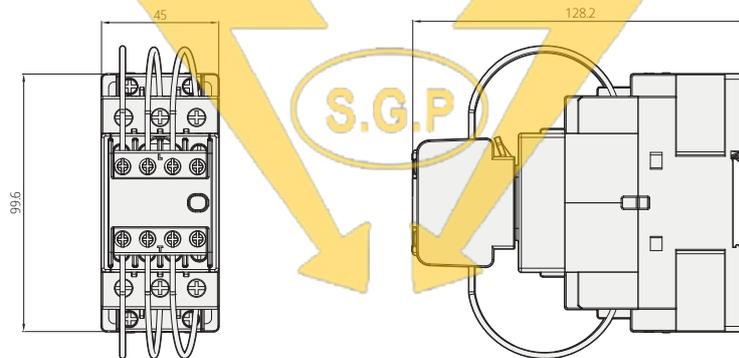
Magnetic Contactor + Capacitor Switching Unit

(Unit: mm)

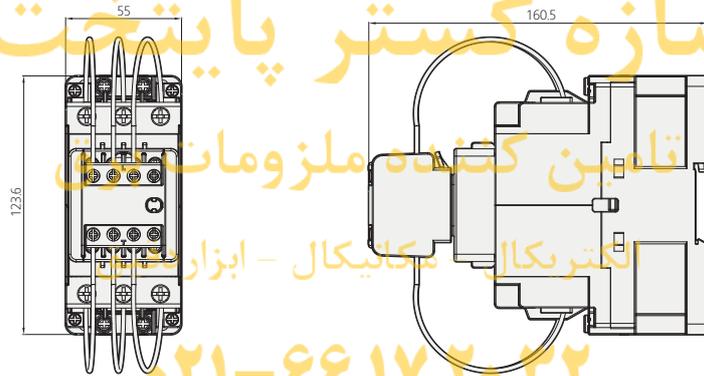
HGC18C



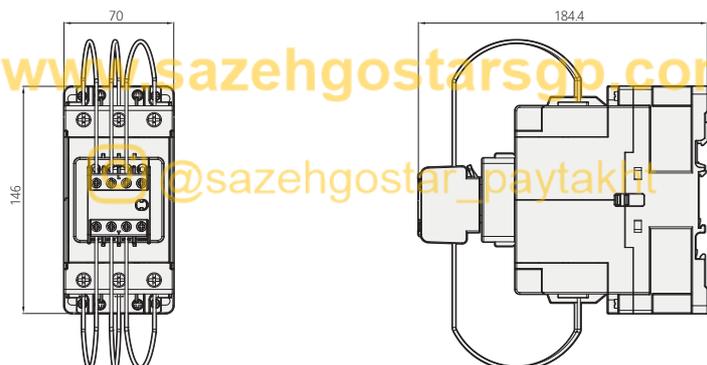
HGC40C



HGC65C



HGC100C



Dimensions

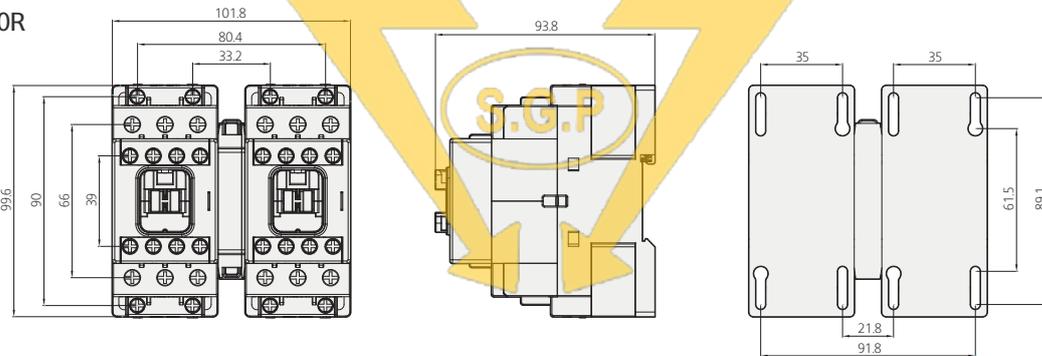
Reversing Contactor (With Interlock Unit)

(Unit: mm)

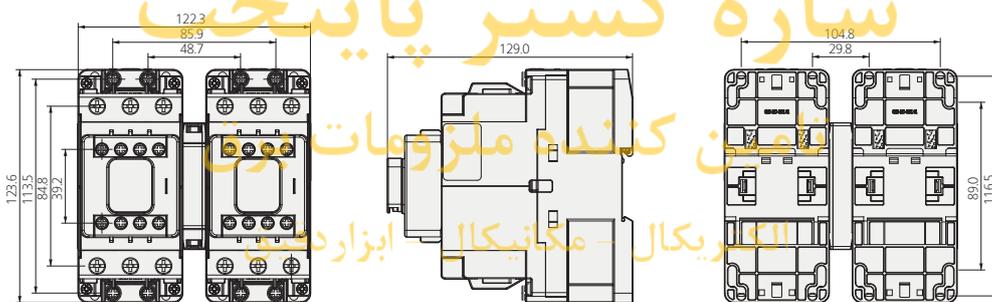
HGC18R



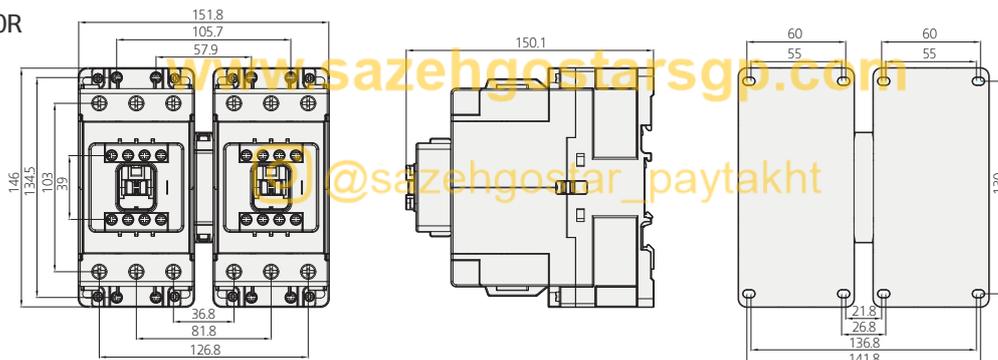
HGC40R



HGC65R



HGC100R



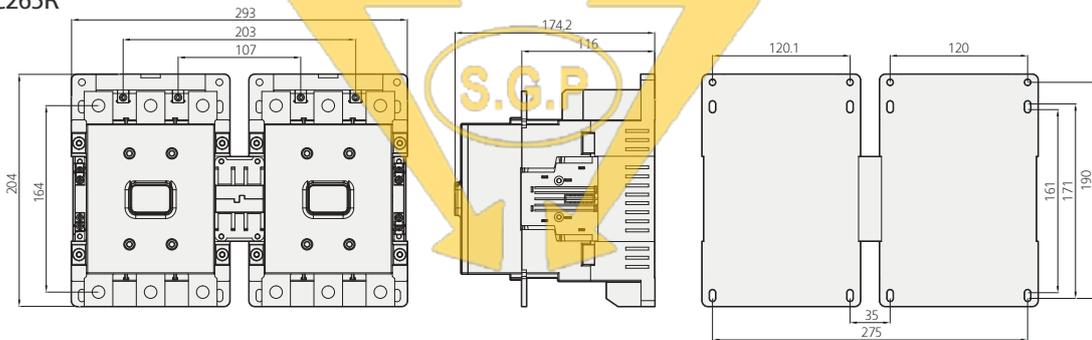
Reversing Contactor (With Interlock Unit)

(Unit: mm)

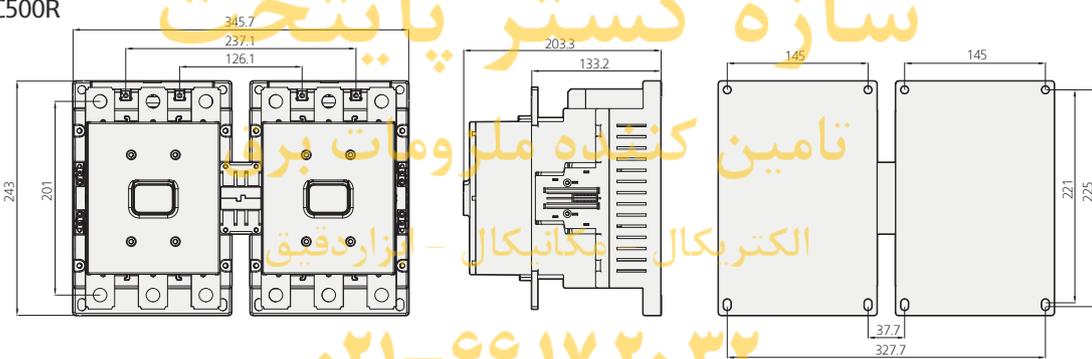
HGC150R



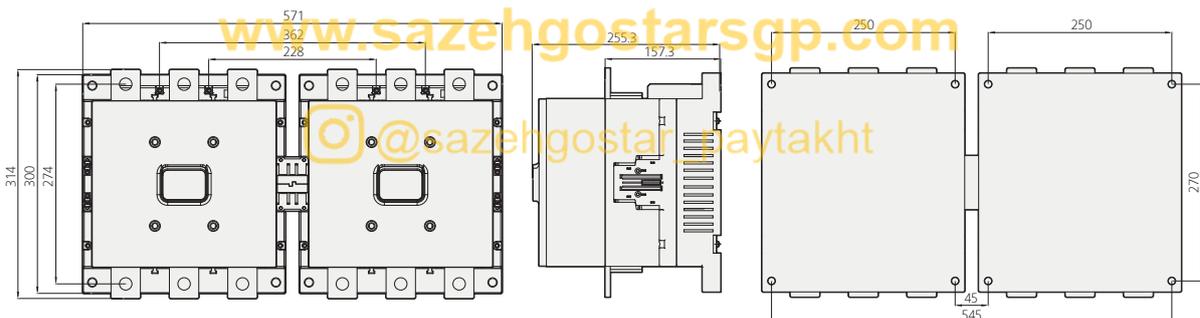
HGC265R



HGC500R



HGC800R



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